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# *A Review of Consumer Assessments of Physician Groups*

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## Introduction

### Goals of the literature review:

The focus of the literature review is consumer assessment of providers at the medical group level.

The Internet provides access to a range of searchable databases. Without a search strategy, however, untold hours may be spent scouring different, sometimes overlapping bibliographies. For this reason, we devised a systematic search strategy to ensure a quality and comprehensive search. Time limits and other constraints on the search helped to combat diminishing returns.

Thorough documentation is the best guarantee that references are not lost or unnecessarily duplicated. To maintain quality control in our literature review, we documented not only the reference of interest, but also any information about the search path that led to the reference. This helped to retrospectively analyze the comprehensiveness of our search and allows for the reproducibility of the search results.

For each iteration of the literature search, we recorded the following information: a) database searched, b) key words and search option combinations, c) specific organization or WWW site, d) years used for the search, e) number of returned references per search, and f) number of selected references per search.

We used five online databases for the literature search: MEDLINE, HEALTHSTAR, ERIC, JSTOR, and UNCOVER (See Appendix A for a description of each database used).

Our search began with the combinations of keywords and databases outlined in the search strategy document (see Appendix A). We conducted 45 different searches. Once these queries were exhausted, we screened the results based upon the following criteria: articles were selected that contained partial, full or referenced instruments that measured satisfaction with medical groups, health plans, or individual physician care. This included review papers and papers that analyzed primary and secondary data sources. Studies that focused on hospital satisfaction were ignored.

A team member screened them initially (and liberally) and then two other team members then screened these selections and a set of articles was agreed upon and ordered. A database was created to track the articles upon various categories (level of assessment, data source, and instrument source). These articles were summarized individually and compiled by project staff.

To assess the comprehensiveness of the literature review, experts in the field of consumer assessment of health plans and consumer assessment of physicians selected a set of important background papers. Those involved in the literature search were blind to this list, and the search was tested to see if the papers were included. After the first iteration of our search, we identified

some important omissions from our literature search. Articles by key contributors to the field of patient satisfaction were missing, so we decided to begin a second iteration of searches.

The project team devised a set of keywords based on the MESH headings from the set of missing articles. These searches (n = 15) retrieved both the missing articles and others on related topics (See Appendix A). Members of the team conducted these 14 additional searches, mirroring the screening and selection process from the first iteration, and compiling the summaries from selected articles.

In this report we summarize data on the articles that include information on consumer assessment of the physician or group of physicians at the physician group level. We present information on the various data collection methods and instruments used in these studies, major dimensions or domains assessed (See Table 1), and information on the reliability and validity of measures (Table 2). Finally, where available, we document case mix variables and their relations to patient evaluations of care. (For information on the databases reviewed and keyword search strategy, see Appendix A. For detailed information on each of the articles reviewed, please see Appendix B).

We reviewed the literature with the following goals in mind: a) to identify the major dimensions studied related to patient evaluations of the provider or physician group; b) to determine which instruments are being used most frequently to assess patient experiences with the provider or physician group; c) to evaluate the state of the art in measuring patient experiences with care and provide data on reliability and validity of instruments; and d) to review data collection strategies used in gathering patient evaluations.

Several project staff reviewed all of the articles that were originally identified through the literature review. For each article, we attempted to obtain the following information: 1) sample size and characteristics; 2) instruments used; 3) aims of study (intended use of measures); 4) domains studied; 5) availability of questionnaire items within article; 6) data collection strategies employed; 7) reliability and validity of data provided; 8) casemix variables; and 9) major study findings (see Appendix B).

We conducted over 45 searches. From these searches, we reviewed the abstracts of articles that might be relevant to PG-CAS efforts. A total of 230 articles were found from the first search strategy of which 27 were selected for inclusion in our literature review. From the second search strategy we found over 400 articles which were narrowed down to 87. From these we selected 29 articles for possible review. Of the final 56 articles retrieved as "potentially relevant articles" (i.e., articles that might be useful to the Provider Group-Consumer Assessment Survey (PG-CAS) Instrument development effort), we found that 13 articles found were not applicable upon further review because they were marketing pieces for a managed care plan or service (e.g., Kirsch, 1969; Jensen, 1987; Gaughan, 1993; Campbell, 1995; Miller, 1995; Consumer Reports, 1996); were theoretical or philosophical pieces not deemed relevant to PG-CAS efforts (e.g., Ware, Davies-Avery, and Stewart, 1978; Emanuel, 1996; Etter, 1997; Nelson, 1995; Sisk, 1990; Stange, 1998; Ware, Davies, Rubin, 1987). We also excluded 8 articles that did not have any components related to physicians or physician groups. Therefore, of the original articles that were

initially identified through our searches, we determined that 34 were relevant to the PG-CAS effort because they dealt specifically with provider assessment or although they focused on health plans or health systems, had instruments with questions related to provider level assessment which might be useful for our instrument development efforts. In addition, we identified two other unpublished reports and three articles published after our searches were concluded which are also included in our final set.



**Table 1:**  
**Dimensions of Patient Satisfaction Measured in Articles Reviewed for the PG-CAS efforts**

Dimensions studied	Investigators (lead or sole author listed only)
<b>Practice factors</b>	
Accessibility / access / convenience	Roberts, 1987; Merkel, 1984; Etter, 1997; Nelson, 1995; Chung, 1999; Sixma, 1998; Safran, 1998; Hulka, 1975; Doyle, 1977; Wyn, 1997; Liaw, 1997; Allen, 1996; Robbins, 1993; Weiss, 1990; Singh, 1999; Isenberg, 1998; Handler, 1998; Grumbach, 1999; Grogan, 1995; Taira, 1997; Pacific Business Group on Health (1996, 1999); Hays, 1998; Morales, 2000; Morales, 1999.
Availability of resources	Roberts, 1987; Rubin, 1993; Schmittiel, 1997; Doyle, 1977; Singh, 1999; Handler, 1998; Hays, 1998; Morales, 2000; Morales, 1999
Finances/cost	Roberts, 1987; Merkel, 1984; Etter, 1997; Safran, 1998; Hulka, 1975; Doyle, 1977; Wyn, 1997; Pacific Business Group on Health (1996, 1999); Pacific Business Group on Health (1996, 1999); Hays, 1998; Morales, 2000; Morales, 1999
Physical environment	Merkel, 1984; Nelson, 1995; Tessler, 1975; Doyle, 1977; Allen 1996; Weiss, 1990; Handler, 1998; Grogan, 1995; Hays, 1998; Morales, 2000; Morales, 1999
Efficacy/ outcomes of care	Roberts, 1987; Bush, 1993; Allen 1996; Handler, 1998
"community image"	Nelson, 1995
Visit specific ratings	Nelson, 1995
Time with physician	Feletti, 1986; Liaw, 1997; Hays, 1998; Morales, 2000; Morales, 1999
"prudence" [in terms of expenses and risk]	Doyle, 1977
Coordination of care	Grumbach, 1999; Taira, 1997; Hays, 1998; Morales, 2000; Morales, 1999
<b>Provider factors:</b>	
Humaneness / Art of care (caring, empathy, understanding, emotional aspects)	Linn, 1984; Rubin, 1993; Ross, 1981; Tessler, 1975; Chung, 1999; Poulton, 1996; Schmittiel, 1997; Roberts, 1987; DiMatteo, 1980; Doyle, 1977; Bush, 1993; Singh, 1999; Weingarten, 1995; Handler, 1998; Merkel, 1984; Thom, 1999; Sixma, 1998; Schmittiel, 1997; Robbins, 1993; Hays, 1998; Morales, 2000; Morales, 1999
Technical quality of care/ Technical competence	Roberts, 1987; Linn, 1984; Merkel, 1984; Rubin, 1993; Ross, 1981; Tessler, 1975; Chung, 1999; Thom, 1999; Schmittiel, 1997; DiMatteo, 1980; Safran, 1998; Hulka, 1975; Liaw, 1997; Robbins, 1993; Singh, 1999; Weingarten, 1995; Isenberg, 1998; ; Taira, 1997; Pacific Business Group on Health (1996, 1999); Hays, 1998; Morales, 2000; Morales, 1999
Psychosocial aspects	Linn, 1984; Tessler, 1975; Schmittiel, 1997; Feletti, 1986
Mutual participation by patient and doctor	Linn, 1984; Chung, 1999; Feletti, 1986
Interpersonal aspects (communication)	Etter, 1997; Ross, 1981; Tessler, 1975; Chung, 1999; Poulton, 1996; Thom, 1999; Sixma, 1998; Sixma, 1998; Schmittiel, 1997; DiMatteo, 1980; Stewart 1978; Safran, 1998; Hulka, 1975; Doyle, 1977; Allen 1996; Weiss, 1990; Singh, 1999; Isenberg, 1998; Grogan, 1995; Pacific Business Group on Health (1996, 1999); Hays, 1998; Morales, 2000; Morales, 1999
Trust	Thom, 1999; Safran, 1998; ; Taira, 1997
Professional competence	Schmittiel, 1997; Tessler, 1975; DiMatteo, 1980; Feletti, 1986; Hulka, 1975; Doyle, 1977; Robbins, 1993; Weiss, 1990; Singh, 1999; Isenberg, 1998; Grogan, 1995; Taira, 1997; Hays, 1998; Morales, 2000; Morales, 1999
Competence in emotional domain	Feletti, 1986
Competence in social domain	Feletti, 1986; Grogan, 1995
General satisfaction	Roberts, 1987; Merkel, 1984; Nelson, 1995; Schmittiel, 1997; Schaufli, 1996; DiMatteo, 1980; Safran, 1998; Doyle, 1977; Robbins, 1993; Isenberg, 1998; Grumbach, 1999; Grogan, 1995; Pacific Business Group on Health (1996, 1999)
Continuity	Roberts, 1987; Poulton, 1996; Feletti, 1986; Safran, 1998; Doyle, 1977; Allen 1996; Grumbach, 1999; Taira, 1997; Hays, 1998; Morales, 2000; Morales, 1999
Expectations/ beliefs/attitudes about care	Liaw, 1997

**Table 2: Summary of Reliability and Validity Information provided in articles reviewed for PG-CAS efforts**

<i>Citation [article #]</i>	<i>Publication Date</i>	<i>Sample size</i>	<i>Dimensions</i>	<i>Reliability/validity</i>
Roberts, JG [1]	1987	59m (t1); 43 (T2)	Professional competence, finances/cost, access, convenience, availability of resources, continuity of care, humaneness, efficacy, general satisfaction	Reliability: Hulka (0.64); Ware (0.59) Concurrent validity ( $r = 0.75-0.81$ ) Prevalence of dissatisfaction (0-7%)
Linn, LS [8]	1984	227	Mutual participation, technical quality, psychosocial aspects, courtesy. Questions modified for 2 versions: "Satisfaction" vs "Evaluation" version	No data provided
Merkel, WT [9]	1984	222	Financial/cost, access, continuity of care, humaneness, technical quality, general satisfaction, physician's facilities; payment mechanisms	Reference given for reliability/validity information from original sample
Rubin, HR [12]	1993	17,671	Appt. scheduling; waiting time, technical quality, time with physician/health provider, care provided during visit	No data provided
Allen, HM [13]	1994	24, 306	Not mentioned	No data provided
Ross, CE [17]	1981	372 children	Personal qualities; technical quality; care provided during visit	No data provided
Tessler, R[19]	1975	354 prepaid plan; 356 alternative plan	MDs training & technical competence; Doctor's concern; doctor's warmth; doctor's friendliness; technical quality; adequacy of doctor's office facilities and equipment; time with physician/health provider; amount of privacy in MD's office; Quality of medical care, Doctor's willingness to listen when you tell him about your health	No data provided
Chung, KC [21]	1999	345	Personal qualities; length of time to get appt.; access by phone; waiting time; convenience; technical quality; explanation of what was done; general satisfaction; time with physician/health provider	No data provided
Poulton, BC [24]	1996	728 of 1,575 surveys	Professional care ( $\alpha=0.87$ for all consultations; 0.87 for GP; 0.86 for nurses; depth of relationship ( $\alpha=0.81$ for all consultations; 0.81 for GP; 0.81 for nurses; perceived time ( $\alpha=0.81$ all consultations; 0.84 for GP; 0.78 for nurses.	Original study: 0.91 (professional care) 0.87 (depth of relationship), 0.82 (perceived time) <b>See specific information in previous column.</b>

Table 2: Summary of Reliability and Validity Information provided in articles reviewed for PG-CAS efforts (Continued)

<i>Citation [article #]</i>	<i>Publication Date</i>	<i>Sample size</i>	<i>Dimensions</i>	<i>Reliability/validity</i>
Thom, DH [27]	1999	414	Professional competence; personal qualities; humaneness; trust	Individual item scale correlations ranged from .53 to .72; construct validity: trust correlated with current care ( $r = .73$ , $p < .001$ ) & with perceived humaneness of physician behavior ( $r = .68$ , $p < .001$ ).
Sixma, HJ [28]	1998	13, 104	Interpersonal relationship; accessibility; humaneness; satisfaction with information / advice given	No data provided
Schmitt diel, J [29]	1997	10,205	Professional competence; personal qualities; humaneness; technical quality; explanation of what was done; psychosocial aspects; courtesy; general satisfaction; time with physician/health provider	No data provided
Schauffler, HH [30]	1996	5,066	General satisfaction; "Overall, how satisfied are you with the doctor seen most frequently?"	No data provided
DiMatteo, MR [31]	1980	329	Professional competence; technical quality; explanation of what was done; general satisfaction; MDs communication; MDs empathy	Internal consistency (Cronbach's $\alpha = 0.92$ ) Test-retest reliability 0.63 ( $n = 22$ )
Stewart, MA [32]	1978	299 of 319	Personal qualities	No data provided
Feletti, G [33]	1986	503	Competence in physical domain & physical examination; continuity of care; mutual participation; psychosocial aspects; time with physician/health provider; competence in emotional domain; competence in social awareness; MD treated them as unique individuals (perception of their individuality)	Alpha coefficient for 43-item questionnaire = 0.91
Safran, DG [34]	1998	7204	Thoroughness of physical examination; finances/cost; access; continuity of care; general satisfaction; comprehensiveness of care; integration of care; MD-patient communication; TRUST, interpersonal treatment	No data provided
Hulka, BS [35]	1975	1,713	Professional competence; personal qualities; finances/cost; access; convenience; technical quality	No data provided

Table 2: Summary of Reliability and Validity Information provided in articles reviewed for PG-CAS efforts (Continued)

<i>Citation [article #]</i>	<i>Publication Date</i>	<i>Sample size</i>	<i>Dimensions</i>	<i>Reliability/validity</i>
Doyle, BJ [36]	1977	432 household interviews	Professional competence; consideration; cost, payment, mechanisms; access; convenience; availability of resources; hospitals, specialists, family doctors; continuity of care; explanation of what was done; general satisfaction; MDs facilities; prudence (expenses); prudence (risks); insurance coverage	Internal consistency ranged from 0.50 to 0.91 with a median of 0.71. Note: Detailed reliability data presented for each dimension measured.
Wyn, R [38]	1997	1,544 women	Finances/cost; access; provider choice	No data provided
Bush, T [39]	1993	270	3 scales mentioned: information scale, caring, effectiveness of treatment	Factor 1 "confidence" (Cronbach's $\alpha$ = .82) Factor 2 "Attitude" (Cronbach's $\alpha$ = .81)
Liaw, ST [40]	1997	197	"Good doctor" "Nice doctor"; waiting time; care provided during visit; Expectations of care met; satisfaction with treatments received; doctor's examination' doctor's explanation of treatment; comprehensiveness of service provided	No data provided
Allen, WW [41]	1996	436 of 672	Personal qualities; access; convenience; continuity of care; physical environment/facilities; five dimensions studied: interpersonal manner; efficacy/outcomes; accessibility/convenience; continuity; physical environment	In original sample, average internal consistency was 0.74; test-retest reliability on 12 measures averaged 0.72.
Robbins, JA [42]	1993	100	Professional competence; access; humaneness; technical quality; general satisfaction	No data provided
Weiss, BD [43]	1990	2,365 pre-enrollment	Professional competence; personal qualities; access; convenience; MDs, hospital, specialty care; physical environment/facilities; MD-patient communication; staff attitudes toward patients;	Cronbach's $\alpha$ = 0.84; correlation 0.33-0.69
Singh, H [45]	1999	1,451	Professional competence; access; waiting time; courtesy; duration of examination; Practitioner's consideration & courtesy; skills & competence; opportunities for seeing specialists; MDs willingness to listen to patients; MDs advice	No data provided
Beck, A [46]	1997	321		No data provided

**Table 2: Summary of Reliability and Validity Information provided in articles reviewed for PG-CAS efforts (Continued)**

<i>Citation [article #]</i>	<i>Publication Date</i>	<i>Sample size</i>	<i>Dimensions</i>	<i>Reliability/validity</i>
Weingarten, SR [47]	1995	2,799	Technical quality; art of care (9 items); technical aspects of care (5 items) and total satisfaction (mean of 14 items)	No data provided
Kottke, TE [48]	1997	6,830		No data provided
Isenberg, SF [49]	1998	6,088 Phase I; 2,272 Phase II	Professional competence; access; convenience; technical quality; courtesy; general satisfaction; Overall visit; technical skills; personal manner of providers;	No data provided
Handler, A [50]	1998	88 African American; 27 Mexican American	Access; availability of resources; efficacy; technical quality; physical environment/facilities; art of care	Overall satisfaction (alpha=0.95); art of care=0.91; technical quality=0.81; physical environment=0.78; access=0.73; availability=0.56.
Grumbach, K [51]	1999	10,608	General satisfaction; primary care measures: coordination, comprehensiveness, accessibility of care, preventive care procedures, and health promotion.	No data provided
Grogan, S [53]	1995	1,193	Professional competence; phone, transport, appointments, facilities, emergency care, treatment, outcome, nurses, receptionists; availability of resources (ER, nurses); general satisfaction; MD communication skills; MD social skills	Entire questionnaire (alpha=0.96). Subscale scores: Doctors (0.95); access (0.85); nurses (0.81); appointments (0.83) and facilities (0.73).
Taira, DA [54]	1997	502	Professional competence; access; continuity of care; Comprehensiveness, integration, clinical quality (communication & technical skill), interpersonal treatment, TRUST	No data provided
Steven, ID [55]	1999	12,605		No data provided
PBGH	1996, 1999	60,000 & 30,774 (in 1998)	access to care (7 items, alpha=0.89, RTT=0.93), promptness of care (2 items, alpha=0.75, RTT=0.94), cost of care (2 items, alpha=0.82, RTT=0.94), technical quality (3 items, alpha=0.85, RTT=0.94), interpersonal/ communication (6 items, alpha=0.95, RTT=0.94), courtesy of office staff (1 item, RTT=0.90), health plan services (1 item, RTT=0.93), overall satisfaction with doctor (1 item, RTT=0.88), overall rating of care (2 items, alpha=0.92), and overall satisfaction with health plan (1 item, RTT=0.93).	<b>See previous column</b>
Hays, RD	1998	7093	Intention to switch to another health plan, intention to switch to another physician	6 multi item scales constructed from

			group; ratings of care: overall quality of care, quality and convenience of care, access to care, office waiting time, choice of primary care provider, and coverage for mental health care; reports about care: appointment waiting time, office waiting time, continuity of care, and health promotion and disease prevention activities; utilization; health status; presence of chronic conditions; background information.	<p>exploratory factor analysis. Internal consistency. The <math>\alpha</math> coefficients were 0.81 or higher for 7 of the 8 SF-36 scales and ranged from 0.77 to 0.98 for the 6 health care rating scales.</p> <p>Reliability of ratings of care at the physician group level was: overall quality (0.85), quality and convenience (0.85), access to care (0.89), office waiting time (0.88), choice of provider (0.87), and mental health coverage (0.49).</p>
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## **Summary of Findings**

Among the 39 articles that assessed physicians or group practices, 27 were empirical studies, 6 used secondary data and 6 were review and or other types of articles without data analysis. Studies that included any data collection relied on mail surveys, telephone surveys, or self-administered questionnaires that were conducted within clinics or other health settings, in the classroom, or in the community. Trained interviewers were used to gather data in 5 studies and data were collected primarily in the clinic setting (although in 2 studies a trained interviewer in the patient's home collected data). Data collection methods could not be identified from information provided in 2 articles. Although many of the 39 studies that focused on the provider used multi-item scales to assess various aspects of patient evaluations of care, a few studies used single-items to measure some aspect of patient satisfaction with provider or provider group (e.g., "Would you refer your doctor to a friend?" "Overall, how satisfied are you with your provider?"). Many studies used "home-cooked" questionnaires often without providing reliability or validity information or without information on the developmental process or how to obtain a copy of the questionnaire. As noted in Table 2, very few articles from the original 56 articles we identified from our initial search had any data on reliability or validity of the instruments used or developed. However, the majority of the studies used survey instruments that had been used previously with other populations (e.g., Ware Patient Satisfaction Questionnaire, MOS Visit Specific Questionnaire, Hulka & Zyzanski questionnaire, GHAA Patient Satisfaction Questionnaire).

### **Instruments Used Multiple Times**

Among the 33 articles that included any data analysis (27 from primary and 6 from secondary data sources), we found that 29 used items or instruments that had been previously developed and that some adapted them for the specific purpose of their study (e.g., Ware's Patient Satisfaction Questionnaire, Hulka & Zyzanski's satisfaction questionnaire, items from the Medical Outcomes Study Visit Specific Questionnaire). Others relied on items collected in large scale or national studies (e.g., Health Plan Value Check, Commonwealth Fund's 1994 Managed Care Survey, or the Dutch National System Survey). In the six studies that focused on provider assessment, the authors developed their own surveys or instruments using various methodologies to assess patient satisfaction with general practitioners or other providers. Only two of these studies, however, presented psychometric properties of the instrument. The majority of the studies used multi-item scales to measure a given dimension of patient satisfaction while a few studies (particularly those that developed their own survey) used a single-item question to assess patient satisfaction with their provider or group practice. Overall, for all the reviewed articles considered relevant to the PG-CAS, we found that 26 of the 39 articles used previously developed instruments while 13 studies did not.

In the following section, we provide an expanded summary of the most frequently used instruments.



## **Patient Satisfaction Questionnaire**

We identified several studies that used a version of the Patient Satisfaction Questionnaire (PSQ). Some used the entire PSQ, others used certain sub-scales, and still others adapted questions. The PSQ was used to assess care within various outpatient settings and in a community setting. The study groups in which the PSQ was used included, for example, community members, Medicaid recipients, general patient populations seen in family practice and general practice clinics, and patients discharged after hospitalization for myocardial infarction.

The earliest study we identified for this literature review which used the PSQ (Doyle & Ware, 1977) assessed the importance of consumer perceptions of various characteristics of physicians and medical care services in relation to general satisfaction with medical care and determined whether each characteristic had equal importance across selected groups differing in demographic and socioeconomic characteristics. Respondents completed a 32-page self-administered questionnaire that included the 51-item PSQ and questions about sociodemographic information, general health perceptions, use of health services, and general satisfaction with medical care. A mixed sampling design (cluster, regular interval, and proportional stratified sampling) was used to draw 520 households with 432 completing the survey. Internal consistency reliability coefficients ranged from 0.50 to 0.91 with a median of 0.71 for the 17 scales. Six major dimensions of consumer perceptions regarding physicians and their medical care were identified using factor analysis of survey data: physician conduct, continuity of care, accessibility, availability of hospitals/specialists, completeness of facilities, and availability of family doctors. Scores for these dimensions and multivariate statistical methods were used to predict general satisfaction ratings for a cross section of adults and for groups differing in age, education, health status, and sex. Five of these components were significantly related to general satisfaction, with physician conduct having the strongest association (accounting for 41% of the variance).

A later study conducted by Merkel and colleagues (1984) examined the relationship between physicians' expectations of patient satisfaction and actual patient satisfaction among 22 patients within a university-affiliated family health center using the short form of PSQ-II. The items in the patient's general satisfaction scale were: 1) "I'm very satisfied with the medical care I receive," 2) "The care I have received from doctors is just about perfect," 3) "Most people receive medical care that could be better," and 4) "Doctors respect their patient's feelings." Physicians completed the same questionnaire prior to the study, with instructions to answer how they thought the typical/average patient would respond and also completed the Social Factors in Illness and the Doctor-Patient Relations subscales of the Attitudes toward Social Issues in Medicine Questionnaire. In addition, physicians completed a three-item questionnaire immediately after seeing each patient, which assessed the physician's perception of patient satisfaction with the visit, the physician's own satisfaction with medical care rendered, and the physician's liking for the patient. Patients completed the patient questionnaire after their visit. In this study, patient satisfaction was significantly and positively correlated with how much the physician liked the patient. The major finding was that advanced family practice residents could not accurately predict their patients' level of satisfaction with medical care.

In another study, the authors compared two patient satisfaction questionnaires (Hulka instrument with the PSQ) and assessed the quality of the data collected (Roberts and Tugwell, 1987). Patients hospitalized for myocardial infarction were asked to complete both instruments following an outpatient visit (at 4 and again at 6 months after discharge). Order of questionnaire completion was counterbalanced. The Hulka questionnaire measured satisfaction in three domains: professional competence, personal qualities, and cost/convenience.



The Ware questionnaire assessed satisfaction in 8 areas: access/convenience, finances, availability of resources, continuity of care, quality/competence of physician, humaneness of physician, general satisfaction, and efficacy of care. A total of 67 patients were recruited into the study (59 patients participated in the month 4 survey, 43 in the six-month survey). Overall, there were few dissatisfied patients (0-7 percent). Likert mean scores were determined for each questionnaire and found that they gave similar results. The two questionnaires were highly correlated using Pearson correlation coefficients for total scores (4 months,  $r=0.81$ ; 6 months,  $r=0.75$ ). Components that had the highest mean scores in both the Hulka and PSQ dealt with the physician's personal qualities and professional competence. In the PSQ, patients expressed lower satisfaction with finances and greater satisfaction with continuity and humaneness of physician. Pearson correlation coefficients for four- and six-month Likert scores were calculated with 43 patients who completed surveys at both times: PSQ ( $r = .64$  (90% CI = .46- .77) and Hulka questionnaire ( $r = .59$ , 90% CI = .40 - .74).

Roberts and Tugwell (1987) reclassified the PSQ statements according to the three Hulka component headings: 1) PSQ subscales on quality/competence of the physician, general satisfaction, and efficacy of care were reclassified into Hulka's professional competence scale (PC); 2) PSQ humaneness of physician subscale was reclassified into Hulka's personal qualities scale (PQ); and 3) PSQ subscales on access/convenience, finances, available resources and continuity of care were reclassified into Hulka's cost/convenience (CC). Comparable results were found in both the Hulka and revised PSQ questionnaires. The Pearson correlation coefficients for the PC, PQ and CC component headings were  $r = .56$ ,  $r = .65$ , and  $r = .52$ , respectively. The PSQ had an 11-point higher total score compared to the Hulka questionnaire (paired t-test,  $p < .001$ ).

Robbins, Bertakis, Helms, and colleagues (1993), assessed the influence of physician practice behaviors on patient satisfaction among 100 patients seen at a university-based residency teaching clinic using physician interviews, observations of doctor-patient encounters (scored using the Davis Observation Code, DOC) and patient interviews. Patients completed a pre-visit questionnaire (using the original PSQ) and a revised post-visit questionnaire that assessed patient satisfaction with the specific encounter and provider. The encounter was videotaped and physician behavior scored/characterized using the DOC. The following components of patient satisfaction were assessed in an 18-question survey: general satisfaction, physician humaneness, quality/competence and access to care. Questions were summed to come up with a total visit-specific satisfaction score. Using multiple, stepwise regression analysis, total visit-specific satisfaction was significantly related to total pre-visit satisfaction and to four DOC variables: health education, physical examination, the discussion of treatment effects, and history taking. The general, humaneness, and quality/competence subscales were positively related to the first three DOC variables but negatively related to history taking.

Allen, Stoline, Yang and Barrett (1996) used an adapted version of the PSQ in a cross-sectional study of 436 Medicaid and non-Medicaid patients attending four family practice residency clinics. The 39-item survey included questions on demographics and five dimensions of patient satisfaction (interpersonal manner, efficacy/outcomes, accessibility/convenience, continuity and physical environment). It also had a composite score for life satisfaction, one measure of patient confidence in the local medical care community, and also included questions about how patients felt they were treated based on insurance type. The authors did not find any evidence that Medicaid enrollees were less satisfied with their medical care than other patients in family practice residency clinics after adjusting for the effects of life satisfaction, confidence in the local medical care community, and various demographic factors.

More recently, Handler, Rosenberg, Raube, and Kelley (1998) adapted a version of the PSQ to explore the relation between characteristics of prenatal care and satisfaction among 75 African American and 26 Mexican American Medicaid recipients who participated in a 25-minute telephone interview. The survey had questions related to satisfaction with prenatal care (art of care, technical quality, physical environment, access, availability and efficacy), prenatal care characteristics (practitioner attributes, service availability, and features of delivery of care) and personal characteristics. The validity of the satisfaction scale was measured by the correlation observed between the overall scale and two questions related to whether they would recommend the site to a friend who needed prenatal care and their overall rating of their overall care. Cronbach's alpha coefficients were reported for the overall scale (a sum of all items in the five sub-scales and one question regarding efficacy of care) and specific satisfaction scales: overall satisfaction ( $\alpha = 0.95$ ), art of care ( $\alpha = 0.91$ ), technical quality ( $\alpha = 0.81$ ), physical environment ( $\alpha = 0.78$ ), access ( $\alpha = 0.73$ ), and availability ( $\alpha = 0.56$ ). Having procedures explained by the provider, short waiting times, access to ancillary services, and having a male prenatal care practitioner were all associated with increased satisfaction scores.

### **Medical Outcomes Study (MOS) Visit Specific Questionnaire (VSQ)**

Nine articles used the Medical Outcomes Study (MOS) Visit Specific Questionnaire (VSQ) to assess perceptions of a specific ambulatory visit. Rubin and colleagues (1993) conducted analyses of data from the Medical Outcomes Study (MOS) to assess 17,671 patient's ratings of specific outpatient visits across five systems of care (combinations of solo/multi-specialty group/HMO practices and fee-for-service/prepaid) in several large, metropolitan areas. The MOS VSQ includes a global rating of the visit and eight items assessing the quality of specific features of the visit and access to care (technical skills, personal manner, appointment wait time, office wait time, time spent with the provider, and what was done at the visit) using an *excellent* to *poor* response scale. Results were weighted for sampling probability and clustering effects. Most patients rated their physicians' technical skills and personal manner as *excellent* (64% and 73%, respectively). Explanations of care and appointment waits were rated as excellent by fewer patients (56% and 53%, respectively). Patients of solo practices rated all aspects of their care better than HMO patients did, most markedly appointment waits, and telephone access. Adjusting for patients' demographics, diagnoses and self-rated health did not change results. Physicians with visit ratings in the lowest 20% were nearly four times as likely to be left by patients within 6 months than physicians in the highest 20%.

Schmittziel, Selby, Grumbach, and Quesenberry (1997) conducted a cross-sectional mail survey to compare the satisfaction of care between members of a group health maintenance organization who chose their primary care provider and members who were assigned a physician. A total of 16,109 patients from the practices of 60 family physicians, 245 general internists, and 55 subspecialists who were part of the Kaiser Permanente Medical Care Program of Northern California were sent a survey (total respondents= 10,205). Patients who chose their personal physician (N=4,748) consistently reported higher satisfaction scores (*excellent* or *very good*) on the 9 MOS VSQ items compared to patients who were assigned a physician (N=5,457) ( $p < .001$  for each comparison). Patients who chose or were assigned a physician were very similar in how they valued most aspects of physician care. However, for two items, ("The physician spends sufficient time with patient", and "The physician's personal manner is courteous, respectful, sensitive and friendly") patients who chose their physician were slightly more likely to value these as "more important than anything else." In a logistic regression model that adjusted for various covariates, having chosen one's physician was the predictor most strongly related to rating the overall visit to be *excellent* (OR 2.18, CI 1.95-2.42). Other significant predictors of higher satisfaction were older age, being male, having lower income, having better physical and mental health scores, the physician's "popularity", and valuing a physician's

personal manner. In further analyses, however, the association of provider choice and satisfaction was similar in men and women and did not differ by patient's age, race, income, or level of education.

Isenberg and Stewart (1998) adapted the MOS VSQ in a study of community-based medical practices. The VSQ was used to examine the influence of patients' perception of quality on physicians' initiatives to improve that perception. Overall, 6088 patients from 59 physician practice offices participated ( $n=3815$  from 29 physician offices in control group and  $n=2273$  patients from 30 physicians in the intervention group). After the baseline surveys were completed, all participating sites were sent their benchmark scores and the intervention sites received a Quality Improvement Process (QIP) poster to display in visible locations of office. One month after they were sent a 2<sup>nd</sup> round of questionnaires for patients to complete (16 of 30 sites returned at least 30 patient questionnaires). The proportion of *excellent* responses on the VSQ was calculated for each item. Next, summary scores for the "access" and "physician attributes" sub-components were calculated as the mean score of the individual items making up the summary score. The change in proportion of *excellent* responses was calculated for both the intervention and control group. The intervention group demonstrated statistically significant improvements in access (4.2% increase,  $p = 0.02$ ), physician attributes (5.7% increase,  $p < .001$ ), and overall visit scores (5.5% increase,  $p = .002$ ) compared to the control group. The authors analyzed the results by individual items and summary scores and found that the differences between the two groups remained significant for three of the four items of the physician attributes scale (explanation, time with doctor, and interpersonal quality of care).

In another study (Chung, 1999), 345 consecutive patients seen in an outpatient plastic surgery clinic filled out a questionnaire, which included the 9 MOS VSQ items. Using multiple logistic regression analysis, the author identified four variables that were significant predictors of the overall visit rating: 1) personal manner of the physician; 2) time spent with physician; 3) length of time to get an appointment; and 4) explanation of what was done. None of several possible casemix variables (age, gender, ethnicity, and education) were significantly associated with the overall rating of the visit.

Grumbach, Selby, Smittiel, and Quesenberry (1999) conducted a cross-sectional mail survey in 1995 using items from the MOS VSQ and other questions to determine if physician specialty was associated with differences in the quality of primary care styles and patient satisfaction in a large, group model HMO. A stratified, random sample of patients who met entry criteria were selected in such a way that approximately equal numbers of patients were sampled from each of three main physician specialty groups. The final sample consisted of 10,608 patients, ages 35-85 years, from the practices of 60 Family practitioners (FP), 245 General internists (GIM) and 55 subspecialty internists (SIM). Health status was measured with the SF-12, and primary care attributes assessed included items on coordination, comprehensiveness, accessibility, preventive care procedures, health promotion—lifestyle and social components (adapted from Starfield, Brice, Schach, Rabin, et al., 1973). No significant differences were found among patients in the three physician groups on health values and beliefs, ratings of the quality of primary care, and satisfaction. Overall, all three-physician specialty groups had comparable and high overall satisfaction ratings. Patients rated GIMs higher than FPs on coordination of care, (adjusted mean scores 68.0 and 58.4, respectively,  $p < .001$ ) and slightly higher on accessibility (50.9 and 46.7, respectively,  $p < .01$ ) and prevention (86.6 and 84.1, respectively,  $p < .05$ ). GIMs were rated more highly than SIMs on comprehensiveness (76.4 and 73.8, respectively,  $p < .01$ ). No significant differences were found on measure of patient satisfaction among the three physician groups. Primary care practice did not differ substantially across physician specialty within this group model HMO.

The previous studies all used MOS to assess quality of care at the health plan level but did not analyze data at the physician group level. We identified one study (Hays, Brown, Spritzer, Dixon and Brook, 1998)

that examined the data obtained through the Medical Quality Commission to assess the HMO care provided by the Unified Medical Group Association which included data on 63 multispecialty medical groups. This was one of the first attempts by the Medical Quality Commission to conduct a standardized member study to compare performance among physician groups. Data from the MOS 36-item short questionnaire was analyzed to present ratings of the care provided by physician groups to enrollees in a variety of capitated maintenance organization plans. A random sample of adult enrollees receiving managed health care from 48 physician groups was sent a 12 page questionnaire which included 153 items that assessed 49 health care rating items in the following areas: intention to switch to another physician group; intention to switch to another health plan; ratings of care; reports about care; utilization; health status; comorbidities; and demographics. The majority of the questions were administered using a 7-point response scale (very poor, poor, fair, good, very good, excellent, and the best) along with an option for "does not apply to me." A total of 7093 questionnaires were returned (59% response rate). Six scales were constructed for the following domains: 1) overall quality of care provided by the physician group; 2) quality and convenience of care provided; 3) access to care; 4) office waiting time; 5) choice of primary care provider; and 6) coverage for mental health care. Each scale was scored by averaging the items on the scale. Internal consistency reliability for the multi-item scales were excellent (the alpha coefficients were .81 or higher for 7 of the 8 SF-36 scales. And ranged from 0.77 to 0.98 for the 6 health care rating scales). They found clinically and statistically significant differences in ratings among the various groups. Negative ratings of care were significantly related to the following: intention to switch to another physician group, difficulties getting appointments, lengthy waiting periods in the reception area and waiting room, the inability to get consistent care from one physician for routine visits, and not being informed by the office staff when there was a delay in seeing the primary care provider.

In the second study, Morales and colleagues (1999) also used data from the Unified Medical Group Association which included data on 63 multispecialty medical groups. In their study, they examined the association of patient ratings of communication by providers with ethnicity (Latino/ white) and language (Spanish/ English). Data were analyzed for 6,211 surveys where the respondents were Spanish speaking Latinos (Latino/ Spanish) English-speaking Latinos (Latino/English) or white. The authors assessed patient satisfaction with provider communication in five areas: medical staff listening to what they had to say; answers to their questions; explanations about prescribed medications; explanations about medical tests; and reassurance and support from their doctor and support staff. Differences in demographic, socioeconomic, and health status characteristics among Latino/Spanish, Latino English, and white respondents were examined using bivariate analyses. A communication summary score was constructed by averaging the five provider communication questions. Then the score was normalized to a mean of 50 and SD of 10 (T score). Associations between this T score and each independent variable were examined. Then each satisfaction-with-communication question was modeled using multivariate logistic regression. The authors found that Spanish speaking Latinos (Latino/Spanish) were significantly more dissatisfied compared with Latinos responding in English (Latino/ English) and non-Latino whites on all 5 communication areas.

### **Other Survey Instruments**

As mentioned previously, of the 33 articles that had any data presented, in 6 of the studies relating specifically to providers, the authors developed their own questionnaires to assess patient satisfaction (Ross et al., 1981; Tessler and Mechanic, 1975; Feletti, Firman, & Sanson-Fisher, 1986; DiMatteo & Hays, 1980; Hulka, et al., 1975) and investigate its relations to various patient-, provider-, or practice-specific characteristics. Additional articles that were primarily focused at the health plan level but also had questions related to the provider are included here as well. The following domains were assessed in these instruments:

- Technical / professional competence of the physician (Ross et al., 1981; Hulka et al., 1975; DiMatteo & Hays, 1980; Feletti et al., 1986)
- Emotional / social competence of the physician (Tessler and Mechanic, 1975; DiMatteo & Hays, 1980; Feletti et al., 1986).
- Interpersonal characteristics of the physician (e.g., friendliness, openness, respectful, courteous, warmth, personal interest in the patient) (Hulka, et al., 1975; DiMatteo & Hays, 1980; Feletti et al., 1986; Hays, et al., 1998; Morales, et al., 1999) or staff members (Tessler and Mechanic, 1975).
- Doctor-patient communication (e.g., doctor listens to patients, communicates information to patients) (Tessler and Mechanic, 1975; Hulka, et al., 1975; Singh, Haqq, Mustapha, 1999; DiMatteo & Hays, 1980; Feletti, et al., 1986.)
- Access to care (cost, convenience) (Hulka, et al., 1975; Singh, et al., 1999).
- Continuity of care (Feletti et al., 1986).
- Mutual understanding between provider and patient (Feletti et al., 1986).
- Attitudes and expectations about care (Singh, et al., 1999; DiMatteo & Hays, 1980).

Hulka and colleagues (1975) developed a questionnaire using Thurstone scaling methods in conjunction with a Likert format and a modified scoring technique that incorporated both the Thurston scale values and the specific weightings determined by the response alternatives selected by the respondents. The scale was designed to measure the respondents' attitudes with respect to: a) the professional and technical competence of the physician; b) personal qualities of the physician in his relationship with the patient; and c) accessibility of care, including cost and convenience. In this community-wide sample of adult respondents, attitudes toward physicians and medical care tended to be favorable. People were least satisfied with cost and convenience of care as compared with physicians' professional competence or personal qualities in the doctor-patient relationship. Age, sex, race, marital status, family size, education, occupation, social class, place of birth, and duration of residence were cross-tabulated against overall and specific satisfaction scores. There were marked and consistent associations among race, sex and the percentage of persons satisfied. Females were less satisfied than males and blacks had lower proportion of high satisfaction scores than whites. Older respondents (> 60) had the lowest percent of high satisfaction scores. Persons in the lower social class were least satisfied with all aspects of medical care. Having a regular physician and long attendance with that physician were variables associated with higher satisfaction.

In another study (Tessler and Mechanic, 1975), the authors used an 11-item measure that measured the following: amount of privacy in doctor's office; amount of time doctor spends with you; doctor's concern about your health; doctor's warmth and personal interest in you; amount of information given to you about your health; doctor's training and technical competence; doctor's friendliness; friendliness of nurses, receptionists, etc.; quality of medical care received; adequacy of office facilities and equipment; and doctor's willingness to listen when you tell him about your health. Each item was answered as 3 = "very satisfied," 2 = "somewhat satisfied," and 1 = "not satisfied at all." They were also asked items related to their value of and belief in medical care. In addition to asking about satisfaction with their own care, respondents were asked



about satisfaction with medical care received by their children. Those in prepaid group practice ( $n = 356$ ) were significantly less satisfied than those in Blue Cross ( $n = 354$ ) on many aspects of their care and most specifically with the professional/technical competence of their physicians, the interpersonal communication with their doctors, and the adequacy of the facilities and equipment. The authors developed satisfaction indices for respondent's satisfaction with own medical care and with care of their children. For the satisfaction index, the scores of each individual item were added to form a summary score. Possible ranges of scores were 11-33. Index of satisfaction with own care had a mean score of 30.48 (S.D. = 4.05) and satisfaction with care received by their children was 30.76 (SD = 4.21). Blue Cross participants were less satisfied in general compared to participants in prepaid plan. Those with greater skepticism toward medical care (example item: "Do you often doubt some of the things doctors say they can do?") and less faith in doctors (e.g., item required choosing between "I have great faith in doctors"; "In general, I think doctors do a good job"; "In general, I think most doctors are over-rated"; "I distrust doctors") were significantly less satisfied with care.

DiMatteo and Hays (1980) studied the significance of patients' perceptions of physician conduct within a family practice center and examined the interrelationships among various aspects of patients' perceptions of their physician's communication ability, affective behavior and technical competence and the association of each domain to overall satisfaction with the physicians. They developed four scales: patient's general satisfaction with and commitment to their physician; their perception of the physician as having communicated sufficient information to them; their perception of the physician's affective behavior; and their physician's technical competence. Three of the four dimensions of physician behavior correlated highly with each other—communication, affective care, and technical competence. The entire 25 item scale had high internal consistency reliability (Cronbach's  $\alpha = 0.92$ ) and moderate test-retest reliability ( $r = 0.63$ ,  $n = 22$ ). There were no significant correlations between the socioeconomic status of patients and their general satisfaction with care or their perceptions of various aspects of physician conduct. Patients' satisfaction with their physicians was highly related to their perceptions of the technical quality of care as well as their feelings that the physician communicated with them as well as cared about them as people.

Ross et al. (1981) studied the primary care provided to 372 children of 61 pediatricians in New Haven (Connecticut) and assessed the impact of provider behavior on patient satisfaction using the following items: a) "If a close friend just had her first baby and asked you for your advice about pediatricians, would you recommend your pediatrician?" b) "Have you ever considered changing pediatricians?"; c) "Is your pediatrician available to you when you need him/her?"; d) "What is your opinion of your pediatrician?"; e) "Have you ever found his/her advice confusing or harmful?"; f) "Do you usually follow his/her advice?"; and g) "How does your pediatrician compare with the ideal pediatrician?" These items were used to develop one general satisfaction measure. In addition, the authors observed the encounter between the patient and doctor and interviewed the physician. The physicians were rated by the observers on technical quality (history-taking, physical exam, laboratory utilization, diagnosis, treatment, prescription writing, follow-up) and psychosocial care (how well the physician knows the family, whether the physician listens to the client, respects his or her wishes, and fully explains the illness and the treatment to the client). The psychosocial component of care had the largest association with client satisfaction whereas technical quality was not significantly related to satisfaction. The number of minutes the physician spent with the patient in the visit, and the child's health were not significantly associated with general satisfaction.

Singh, Haqq, and Mustapha (1999) assessed the following for doctors, nurses and pharmacists: satisfaction with the courtesy and consideration shown; satisfaction with the medical skills and competence; willingness to listen to patients' explanations of problems; satisfaction with advice given; waiting time, and duration of examination (responses available were "satisfied" "undecided" or "dissatisfied"). Approximately

74 percent of interviewees were “satisfied” with their doctor although more were satisfied with the nurses. The greatest needs for improvement were related to the doctor’s and pharmacist’s services and waiting time. No data on reliability or validity were presented.

Four studies had as one of their main goals the development and validation of a patient satisfaction instrument. Feletti, Firman, and Sanson-Fisher (1986) examined patients’ perceptions of their latest consultation with their primary care physician. The questionnaire had items related to the following 10 areas: competence in a physical domain, competence in the emotional domain, competence-social awareness, physician as a model (was GP seen by patients to be modeling a desirable style of living), amount of time for consultation, perceive amount of continuity of care by the physician, mutual understanding in the doctor-patient relationship, patients’ perception of their individuality, information transfer, and competence-physical domain. Patients who saw one of 22 doctors in various doctors’ offices were asked to complete the 49-item “ideal physician” survey (which included 43 questions related to an ideal physician and 6 additional questions on their health beliefs) prior to their consultation with their doctor and were also asked to complete a questionnaire describing their actual encounter. Each item on the 49-item ideal physician questionnaire used a Likert 6-point scale (strongly agree to strongly disagree with NA response category also available). Responses provided by 503 patients on the “ideal physician” questionnaire had high internal consistency with an alpha coefficient of 0.91. In general, patients appeared quite satisfied with the behavior of their physicians (mean  $2.31 \pm 0.6$ ) compared to their rating of the “ideal” physician ( $1.7 \pm 0.43$ ). Principal components analysis revealed five components that accounted for 40% of the variance: a) communication, care and reassurance (24%); b) professional attitudes and behaviors (5%); c) personal confidant of patient (5%); d) technical competence (4%); and e) generating trust in physician (3%). Following this analysis, a 24-item reduced survey was created by selecting items with strong loadings on the first four, unrotated factors. The authors found a high correlation ( $r = 0.78$ ) between the overall satisfaction scores in the long and short versions.

In another study, Grogan, Conner, Willits, and Norman (1995) developed a patient satisfaction questionnaire to measure patients’ satisfaction with general practitioners’ services. They collected data from 1,193 patients identified from one Norfolk Practice using a 148-item questionnaire. Cronbach’s alpha for the final 40-item questionnaire was 0.96. Principal component analysis of the 40 items revealed five factors (with respective Cronbach’s alpha score in parentheses): doctors (0.95), access (0.85), nurses (0.81) appointments (0.83) and facilities (0.73). The “doctors” subscale explained 34.9% of the total variance and had the following general components: information giving and getting, social skills, time pressure and competence. There was a statistically significant relationship between scores on each of the subscales and the general satisfaction scores. Women and older individuals tended to have higher satisfaction ratings.

Weiss and Senf (1990) developed a patient satisfaction survey instrument (adapting some items from the PSQ) for use in health maintenance organizations that would help predict disenrollment from health plans because of dissatisfaction. The questionnaire, previously pilot-tested, included satisfaction questions in the following areas: physician competence, physician personality, doctor-patient communication, accessibility and convenience of care, facilities, staff attitudes toward patients, and availability of physicians, hospital and specialist care. Additional questions focused on personal health, frequency of health services utilization, and sociodemographic information. Nine items were found to predict change in plans, including: “If you could change health plans right now, what would you do?” “I am happy with the coverage provided by my medical insurance plan;” “The office staff treats me with respect;” “I’m very satisfied with the medical care I receive;” “The office hours when I get medical care are good for me;” “My health plan is primarily concerned about patients’ needs;” “When I need a referral to a specialist, my doctor hesitates to send me;” “The care I received from the doctors in the past year is just about perfect;” “I am sometimes ignored by the staff in my doctor’s

office;" and "There are things about the medical care I receive that could be better." (Cronbach's  $\alpha = 0.84$ ; item to total correlations ranged from 0.33 to 0.69).

Steven, Thomas, Eckerman, Browning, and Dickens (1999) developed a 39-item patient satisfaction questionnaire. Twenty focus groups were conducted that lead to the identification of 39 survey items. 12,605 respondents from 133 Australian general practices completed this survey. The authors identified three major factors related to overall satisfaction: interaction between patient and practitioner, technical "competence" (practitioner's ability to relate to different segments of the population) and accessibility to the practice. These three factors accounted for 44.4% of variance with another 11.5% explained by minor factors. Characteristics associated with higher satisfaction were older age, shorter time since last consultation, longer duration attending the practice, regularly attending one general practice, and a large number of consultations in the last month. There was no significant difference between patients attending practices of different sizes in their level of overall satisfaction. However, patients of solo practices were more likely to be satisfied than were other patients.

There were 13 additional studies that used other instruments to assess patient satisfaction with the provider(s) or type of provider. Among these 13 studies, 9 studies presented original data while 4 relied on secondary analyses of large regional or national studies using the Consumer Assessment of Health Plans Survey, the RAND Health Insurance Experiment, HEDIS 2.0 data, the Health Plan Value Check Data, the Dutch National Survey, or the Commonwealth Fund's Managed Care Survey (Spoeri et al., 1987; Allen, 1998; Allen 1994; Schauffler, et al., 1996; Weingarten, Stone, Green, Pelter, et al., 1995). Below are the survey instruments and the studies in which they are cited (more specific information can be found in Appendix B and in the literature review article summaries).

- Trust in Physicians Scale (Thom, Ribisl, Stewart, Luke, Stanford Trust Study Physicians, 1999)
- Medical Preference Survey (Linn, 1984)
- Primary Care Assessment Survey (Taira, Safran, Seto, Roger, et al., 1997; Safran, et al., 1998)
- Dialog Patient Satisfaction Survey (Poulton, 1996)
- Measures of System Performance (Nelson 1995)
- Davis Observation Code (Robbins, et al., 1993)

### **Unpublished Studies Assessing Quality of Care in Physician Groups**

Two unpublished studies presented data collected as part of The Physician Value Check Survey (PVCS). The PVCS is a longitudinal study coordinated by the Pacific Business Group on Health (PBGH) (Pacific Business Group on Health, 1996 & 1999) which is being conducted with managed care patients of participating sites as well as non-managed care patients of preferred provider organizations (PPOs) and includes data from two points in time- 1996 and 1998. The PVCS is a groundbreaking study in several respects. First, it is the only documented study that measures and reports on performance of physician groups rather than at the health plan level. Second, the survey provides physician groups involved in managed care with comparative data to benchmark their individual performance across a number of different dimensions of care. Finally, the survey provides California consumers access to satisfaction and quality data about their physician groups.

PBGH conducted an initial survey in 1996 in collaboration with The Medical Quality Commission (TMQC) and a follow-up survey in 1998. The 1996 PVCS surveyed 60,000 patients from 55 managed care



physician groups in California, Oregon and Washington. The 1998 PVCS includes data on 30,774 patients from 57 managed care physician groups (some who were previous participants) and 2 PPO provider organizations. At both times, patients were administered the PVCS and physicians at those participating sites were asked to complete a Physician Group Attributes Survey which described selected characteristics of their organization.

The PVCS builds on prior survey efforts by both the TMQC and PBGH. Questions for the PVCS were drawn from existing survey instruments (e.g., MOS, the American Association of Health Plans (AAHP), and the RAND Health Insurance Experiment (HIE)) and adapted to measure patient satisfaction at the medical group and IPA level. The PVCS assesses four main areas: patient satisfaction with care provided by the patient's doctors; longitudinal change in self-reported health and functional status; self-reported receipt of selected preventive services; and self-reported processes of care received for two chronic conditions- hypertension and high cholesterol. The 1998 PVCS contained nearly all the questions from the 1996 survey but included a broader set of questions on access to and satisfaction with specialty care, a measure of disability days, questions to assess the prevalence of depression and care for mental health problems, several items to assess receipt of colorectal cancer screening, and process of care measures for medications.

In this study summary satisfaction scales were created by averaging together items that measured the same concept using initial specifications from the New England Medical Center and exploratory factor analysis and substantive considerations. The following satisfaction scales were developed: access to care (7 items,  $\alpha=0.89$ ,  $RTT=0.93$ ), promptness of care (2 items,  $\alpha=0.75$ ,  $RTT=0.94$ ), cost of care (2 items,  $\alpha=0.82$ ,  $RTT=0.94$ ), technical quality (3 items,  $\alpha=0.85$ ,  $RTT=0.94$ ), interpersonal/ communication (6 items,  $\alpha=0.95$ ,  $RTT=0.94$ ), courtesy of office staff (1 item,  $RTT=0.90$ ), health plan services (1 item,  $RTT=0.93$ ), overall satisfaction with doctor (1 item,  $RTT=0.88$ ), overall rating of care (2 items,  $\alpha=0.92$ ), and overall satisfaction with health plan (1 item,  $RTT=0.93$ ).

For casemix adjustment, the satisfaction scales were regressed on age, gender, education, income and selected chronic conditions. In the 1996 study satisfaction was not regressed on race/ethnicity since the assumption was that people of different race/ethnicity groups are entitled to the same quality of health care. In the 1998 survey, race/ethnicity was included in the regression model. The satisfaction scales were also regressed on length of time receiving care from the physician group, utilization and health status.

The 1996 study found differences in self-reported satisfaction on several areas based on geographic location of the group practices (e.g., Southern versus Northern California and Northwest region) and the type of practice setting (managed care versus PPO). In the 1996 PVCS, IPAs received higher scores on satisfaction than did medical groups. With respect to access, no significant differences were found in the 1996 survey and few significant differences were found in the 1998 PVCS by regions and by types of organizations.

### **Domains of Care Assessed in all the Studies Reviewed**

Dimensions included in the articles were identified through an analysis of the survey items assessing consumer assessments of health care providers. In some of the studies, we were able to review the actual questionnaire items, while in other studies we had to rely on published information. Table 1 lists dimensions of patient satisfaction measured in studies reviewed for the PG-CAS instrument development effort. These domains are briefly summarized below.

### **Domains Related to Physician Practice or Health Plan**

- Finances: (ability to pay for services or arrange for payment)
- Availability of resources: (availability of hospitals, clinics, staff, specialists, resources that patients can use)
- Efficacy of care: (measured in terms of perceptions regarding the usefulness or helpfulness of medical care providers and specific treatment regimens in improving or maintaining health status)
- Accessibility/ access to care/ convenience: factors involved in getting or receiving medical care. Such items can include ease of getting an appointment and checking out after an office visit; convenience of appointments, office hours, office location, and parking; time in waiting rooms and exam rooms; punctuality of doctors; and ease of obtaining medical advice after hours. The majority of the studies included questions related to access to, accessibility, and convenience of a health care facility or health plan.
- Continuity: (the extent to which the patient sees his/her personal physician most of the time and knowing the doctor and staff; the regularity of care from the same facility, provider, location). Some of the studies studied areas related to continuity of care, most specifically in the area of provision of primary care within a healthcare setting.
- Physical environment: satisfaction with the pleasantness of the office or the physical environment in which the care is delivered (e.g., pleasantness of atmosphere, attractiveness of waiting rooms, orderly facilities and equipment, etc)

### **Domains Related to Physician and/or Other Health Care Provider**

- Professional competence/ quality: (competence of providers and their adherence to high standards of diagnosis and treatment). Several of the studies we reviewed assessed the provider's competence and quality in the provision of medical care. Some studies had specific questions focusing on the doctor's knowledge, provision of advice by physician regarding a medical problem, thoroughness of encounter, referrals to specialists for complex problems, provision on prescriptions
- Competence in emotional domain: It involves patient's perception of the provider's understanding of the importance of their emotional status. A few studies had questions related to the doctor's empathy, concern, worry, and respect for patient's concerns.
- Interpersonal manner: It involves rating the interpersonal skills of physicians, nurses, receptionists, billing personnel, and other office staff. Several studies assessed this domain and had questions related to the doctor's or staff's respect, concern, communication with patient and how well they related to patient.
- Humaneness of the physician / art of care: (factors assessing the caring shown towards patients). A few studies had questions related to the doctor's empathy, concern, worry, and respect for patient's concerns
- Efficacy/outcomes: assesses the extent to which a patient feels better after seeing the physician and the degree of comfort with the recommended treatment.

- Mutual understanding: (patient's perception of whether they are treated as equal partners when decisions are made regarding their health care).

### **Uses of Consumer Assessments of Health Care**

Patient assessments of health care are important not only as a measure of the quality of care patients receive, but also in identifying potential areas for improving the content of care provided by physicians. Research has suggested that improving patient satisfaction with physicians increases the likelihood that a patient will return to a given health care provider, which is especially important for health care providers in an increasingly competitive medical care marketplace. Many of the articles that we reviewed looked at patient satisfaction as a dependent factor, contingent upon "quality" of care in other aspects. Several studies even focused on primary care factors and their relation to satisfaction.

Satisfaction data have been used most frequently to evaluate health and medical care services. For example, Isenberg and Stewart (1998) used patient satisfaction data (using the adapted MOS VSQ) to assess quality improvement at community-based medical practices where they had implemented a quality improvement protocol in random sites. Explanation given by the doctor, time with the doctor, and personality were the three physician attributes improved by the intervention. In another study (Bush, Cherkin, & Barlow, 1993), the authors assessed whether patient satisfaction was related to physicians' confidence in their abilities to effectively manage low back pain (LPB) and to examine their attitudes about patients with LBP. The confidence and attitudes of PCPs were determined using self-administered questionnaires. Patient satisfaction was measured with a previously validated instrument that was administered 3 weeks after their clinic visit. The instrument measures three dimensions of patient satisfaction: information received from providers (3 items); empathy or caring (4 items); and the perceived effectiveness of therapy (3 items). Data on 21 physicians and 270 patients were included. Provider attitude was not related to any patient satisfaction scales, but provider confidence was significantly related to patient satisfaction with information, but not to patient satisfaction with the caring nature of the provider.

In addition, a few studies examined the relationship between preventive care, health education or health promotion and patient satisfaction with their physician suggesting that there is a positive association. For example, Schaffler, Rodriguez and Milstein (1996) found that patients who self-reported that a physician and/or other health care provider discussed health education topics with them within the past 3 years, were twice as likely to be satisfied with the provider compared to those that had not received patient education regardless of the health plan in which they were enrolled. In this study, age and education were not statistically related to patient satisfaction, although sex, health status, employee satisfaction with out-of-pocket costs were positively associated with patient satisfaction. Korke, Solberg, Brekke and colleagues (1997) found that self-reports of being advised to have a preventive service when due correlated with higher levels of satisfaction only and with general satisfaction index. Finally, in another study (Weingarten, et al., 1995) the authors found a significant relationship between patient satisfaction and provision of some but not all preventive care services.

Other studies have assessed the impact of various clinic characteristics and some provider characteristics that affect satisfaction. In an early study, Hulka and colleagues (1975) found that although attitudes of consumers were more favorable with respect to professional competency and personal qualities of providers, accessibility, including costs and convenience, were less highly regarded. In this same study, the author stated that six factors accounted for 60% of variance in satisfaction and included: physician conduct (41.4%), continuity of care, accessibility, availability of hospitals/ specialists, completeness of facilities, and

availability of family doctors. In a more recent study, Schauffler and colleagues (1996) found that a patient-centered practice style and enrollment in a PPO were positively associated with patient satisfaction. These authors also found that communication, affective care, and technical competence correlated highly with each other. Safran and colleagues (1998) found that access, continuity, comprehensiveness, integration, clinical interaction, interpersonal treatment and trust were predictors most strongly related to patient satisfaction. Handler and colleagues (1998), for example, found that among African American and Mexican American women seeking prenatal care, the following characteristics to be associated with increased satisfaction: having procedures explained by the provider, short waiting times at site, availability of ancillary services, and having a male prenatal care practitioner. Chung (1999) found that patient satisfaction was most strongly related to efficient clinic operation and the quality of the patient-physician interaction. Finally, other researchers (Thom et al., 1999) have found that how the physician was chosen, patient preference for autonomy, self-care, and expectations regarding proportion of care provider should provide were significantly related to satisfaction.

### **Satisfaction as a Predictive Factor**

Several studies have used satisfaction measures to predict disenrollment and adherence to treatment. One study examined the ability of a satisfaction measure to predict who was most likely to disenroll from a particular health plan (Weiss & Senf, 1990). In this study the authors developed a survey instrument with specific applicability to prepaid health care systems that included critical variables that would predict disenrollment from health plans because of dissatisfaction. Analysis was done on 2,365 members who had returned both pre- and post-enrollment questionnaires and who stated they were enrolled in one of three HMO options offered by the university. Through discriminant function analysis, nine items on the questionnaire were found to predict change in plans (Cronbach's  $\alpha = 0.84$ ; item to total correlations ranged from 0.33 to 0.69). Another study assessed patient compliance / adherence with treatment at 6 months follow-up (Thom, et al., 1999) by using the Trust in Physician Scale and interviewing 343 male and female patients seen in 20 community-based practices of primary care physicians in Northern California. Patients completed the 11-item Trust in Physicians Scale at enrollment as well as questions on demographics, preferences for care, desire for autonomy during visit, length of relationship with their current physician, how current doctor was chosen, and expected proportion of care to be received from current doctor. A post-visit questionnaire assessed the humanistic physician behaviors during the visit and satisfaction with care received from the physician (assessed using a subset of 13 questions from the Consumer Satisfaction Survey which assessed technical quality, communication, interpersonal care, and outcomes). Patients completed the Trust in Physician Scale by mail survey 1 month after their enrollment visit. At 6 months, patients were surveyed by mail to ascertain continuity with their physician, adherence to prescribed medications and their satisfaction with the care from their physician, and general measure of interpersonal trust between patient and provider. The Trust in Physician scale demonstrated high predictive validity with all outcome measures (continuity, self-reported adherence with medications, and satisfaction) at 6 months even after adjusting for various covariates and even after controlling for baseline satisfaction.

### **Casemix Adjustment**

Sociodemographic correlates of patient satisfaction identified in this literature review include the following:

**Age:** In several studies we found a positive relationship between age and general satisfaction (e.g., Weingarten, et al., 1995; Shmittiel et al., 1997; Grogan et al., 1995); with the physician's skills and competence (e.g., Singh et al., 1999); and with the physician's courtesy and consideration (e.g., Singh

et al., 1999). In other studies, however, age was not statistically related to satisfaction (Schauffler, 1996).

**Education:** Many articles have noted that less educated individuals tend to be less satisfied than higher educated individuals (e.g., Singh et al., 1999). Other authors (e.g., Chung, 1999; Schauffler, 1996), for example, did not find any significant relationship between education and satisfaction. However, other authors (e.g., Safran et al., 1998) found a positive and significant relationship between education and satisfaction.

**Income / SES:** DiMatteo & Hays (1980) did not find any significant correlations between SES of patients and their general satisfaction with care or their perceptions of provider conduct. Schmittdiel and colleagues (1997) found that decreased SES was associated with increased patient satisfaction in all their patients.

**Marital status:** One study found a positive association between marital status (being married) and higher satisfaction (Tessler, and Mechanic, 1975). This was the only study that correlated this sociodemographic factor with satisfaction.

**Occupational level:** Some authors found that individuals with higher skills tended to be more satisfied in general or with specific aspects of care (e.g., technical competence of provider).

**Race/ethnicity:** Results regarding relationships between satisfaction and race/ethnicity varied among the studies. Hulka and his collaborators (1975) for example found that young Black adults expressed more dissatisfaction with their physician's personal qualities than other groups. Schmittdiel and colleagues (1997) also found that Blacks were less satisfied with medical care compared to Whites. In another study, the authors found that Asian American ethnicity was significantly associated with lower satisfaction scores (Taira et al., 1997). Morales and colleagues (1999, 2000) found that Hispanics were significantly more dissatisfied with care than whites. Morales, Reise, and Hays (2000) used data from the Unified Medical Group Association and found that Hispanics were significantly more dissatisfied with care than whites (effect size=0.27;  $P < 0.05$ ) on 7 of the 9 items dealing with interpersonal and technical aspects of medical care. From this study they concluded that valid comparisons between whites and Hispanics are possible and that disparities in satisfaction ratings between whites and Hispanics should not be ascribed to measurement bias but should be viewed as arising from actual differences in experiences with care. However, some studies (e.g., Chung 1999) did not find any significant relationship between ethnicity and satisfaction.

**Sex / gender:** There were mixed results regarding relationship of sex and satisfaction. Although many studies did find higher satisfaction among women (Hulka et al., 1975; Grogan et al., 1995; Schauffler, 1996), other studies did not find any significant relationship (Chung, 1999; Weingarten, et al., 1995) and even some found that men had higher satisfaction scores than women (e.g., Schmittdiel et al., 1997).

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**APPENDIX A:**

**Consumer Assessment Survey  
Description of databases used:**

**MEDLINE** (MEDlars onLINE) is the National Library of Medicine's (NLM) premier bibliographic database covering the fields of medicine, nursing, dentistry, veterinary medicine, the health care system, and the pre-clinical sciences. It contains bibliographic citations (e.g., authors, title, and journal reference) and author abstracts from over 3,900 biomedical journals published in the United States and 70 foreign countries during the current four years. It also contains over 9 million records dating back to 1966 and has worldwide coverage, but 88% of the citations in the current MEDLINE are from English-language sources and 76% have English abstracts. Citations for MEDLINE are created by the National Library of Medicine, International MEDLARS partners, and cooperating professional organizations.

**HEALTHSTAR** contains relevant bibliographic records from MEDLINE (1975 to present) and unique records from three sources: (1) records emphasizing health care administration selected and indexed by the American Hospital Association (AHA); (2) records emphasizing health planning from the National Health Planning Information Center (only in the backfile); and (3) records emphasizing health services research, clinical practice guidelines, and health care technology assessment selected and indexed through NLM's National Information Center on Health Services Research and Health Care Technology (NICHSR). It includes journal articles, technical and government reports, meeting papers and abstracts, books and book chapters.

**ERIC** is the Educational Resources Information Center (ERIC), a federally-funded national information system that provides a variety of services and products on education-related issues. The ERIC database, the world's largest source of education information, contains more than 950,000 abstracts of documents and journal articles on education research and practice. Abstracts in the ERIC Database are available in printed version in *Resources in Education* and *Current Index To Journals in Education*. The database is updated monthly, ensuring that the information is timely and accurate.

**JSTOR** is a database funded by the Mellon Foundation and contains full text electronic versions of articles from 117 journals in the following fields: African-American Studies, Anthropology, Asian Studies, Economics, Education, Finance, Literature, Mathematics, Philosophy, Science, Population Studies, Sociology and Statistics. Not all of these disciplines are relevant for our study, but some may have useful citations that are not found in the medical literature. Since it is a new service, only articles from the last 3-5 years are available.

**UNCOVER** is a database of current article information taken from over 18,000 multidisciplinary journals. UnCover contains brief descriptive information for over 8,800,000 articles which have appeared since fall 1988. UnCover is easy to use, with keyword access to article titles and summaries.

Access to the Databases:

The table below summarizes the WWW search sites that we used to access the databases:

<b>Database</b>	<b>Site Name</b>	<b>WWW Address:</b>	<b>Years</b>	<b>Advantages / Disadvantages</b>
MEDLINE	Grateful Med	<a href="http://igm.nlm.nih.gov">http://igm.nlm.nih.gov</a>	66 – 99	Official gov't search engine with many help and support files. Easy to use interface.
MEDLINE	Infotrieve	<a href="http://www.infotrieve.com/reemedline/">http://www.infotrieve.com/reemedline/</a>	66 – 99	Easy to use interface and easily read citations
MEDLINE	HealthGate	<a href="http://www.healthgate.com/medline/adv-medline.shtml">http://www.healthgate.com/medline/adv-medline.shtml</a>	66 – 99	Easy to use interface. Has special advanced search functions.
HEALTH STAR	Grateful Med	<a href="http://igm.nlm.nih.gov">http://igm.nlm.nih.gov</a>	75 – 99	Official gov't search engine with many help and support files. Easy to use interface.
HEALTH STAR	HealthGate	<a href="http://www.healthgate.com/healthstar/adv-healthstar.shtml">http://www.healthgate.com/healthstar/adv-healthstar.shtml</a>	75 – 99	Easy to use interface. Has special advanced search functions.
ERIC	AskERIC	<a href="http://ericir.syr.edu/Eric/">http://ericir.syr.edu/Eric/</a>	66 – 99	AskERIC is the official ERIC search engine.
JSTOR	JSTOR	<a href="http://www.jstor.org/jstor/">http://www.jstor.org/jstor/</a>	94 – 99	Provides full text articles for those in database. Many social science journals.
UNCOVER	UnCover Web 2.0	<a href="http://uncweb.carl.org/">http://uncweb.carl.org/</a>	88 – 99	Basic search features offer a broad overview of titles in many different fields.

Note: The short-list of MEDLINE and HEALTHSTAR search engines was chosen by reviewing many different WWW sites and selecting those that had the most hyperlinks pointed to them and a diversity of features. The search engines for ERIC, JSTOR, and UNCOVER are the only ones that are publicly available.

# Consumer Assessment Survey

## Literature Review: Keywords and Combinations

### Goals:

Search for literature and write a review on:

- ◆ Consumer assessment of providers at the medical group level

Keywords: Consumer assessment of providers

Physician	Survey	Satisfaction
Physician Group	Instrument	Patient Satisfaction
Medical Group	Questionnaire	Access to Specialists
IPA	Assessment	Process of Care
Provider	Evaluation	Health Outcomes
Consumers		
Patient		

### Combinations of keywords used for first stage literature review:

#### Consumer assessment of providers

[Physician OR Physician Group OR Medical Group OR IPA] AND Survey  
 [Physician OR Physician Group OR Medical Group OR IPA] AND Assessment  
 [Physician OR Physician Group OR Medical Group OR IPA] AND Instrument  
 [Physician OR Physician Group OR Medical Group OR IPA] AND Questionnaire  
 [Physician OR Physician Group OR Medical Group OR IPA] AND Evaluation

[Physician OR Physician Group OR Medical Group OR IPA] AND Patient Survey  
 [Physician OR Physician Group OR Medical Group OR IPA] AND Patient Assessment  
 [Physician OR Physician Group OR Medical Group OR IPA] AND Patient Instrument  
 [Physician OR Physician Group OR Medical Group OR IPA] AND Patient Questionnaire  
 [Physician OR Physician Group OR Medical Group OR IPA] AND Patient Evaluation

[Physician OR Physician Group OR Medical Group OR IPA] AND Consumer Survey  
 [Physician OR Physician Group OR Medical Group OR IPA] AND Consumer Assessment  
 [Physician OR Physician Group OR Medical Group OR IPA] AND Consumer Instrument  
 [Physician OR Physician Group OR Medical Group OR IPA] AND Consumer Questionnaire  
 [Physician OR Physician Group OR Medical Group OR IPA] AND Consumer Evaluation

[Physician OR Physician Group OR Medical Group OR IPA] AND Survey AND Satisfaction  
 [Physician OR Physician Group OR Medical Group OR IPA] AND Assessment AND Satisfaction  
 [Physician OR Physician Group OR Medical Group OR IPA] AND Instrument AND Satisfaction  
 [Physician OR Physician Group OR Medical Group OR IPA] AND Questionnaire AND Satisfaction  
 [Physician OR Physician Group OR Medical Group OR IPA] AND Evaluation AND Satisfaction

[Physician OR Physician Group OR Medical Group OR IPA] AND Survey	AND Patient Satisfaction
[Physician OR Physician Group OR Medical Group OR IPA] AND Assessment	AND Patient Satisfaction
[Physician OR Physician Group OR Medical Group OR IPA] AND Instrument	AND Patient Satisfaction
[Physician OR Physician Group OR Medical Group OR IPA] AND Questionnaire	AND Patient Satisfaction
[Physician OR Physician Group OR Medical Group OR IPA] AND Evaluation	AND Patient Satisfaction
[Physician OR Physician Group OR Medical Group OR IPA] AND Survey	AND Consumer Satisfaction
[Physician OR Physician Group OR Medical Group OR IPA] AND Assessment	AND Consumer Satisfaction
[Physician OR Physician Group OR Medical Group OR IPA] AND Instrument	AND Consumer Satisfaction
[Physician OR Physician Group OR Medical Group OR IPA] AND Questionnaire	AND Consumer Satisfaction
[Physician OR Physician Group OR Medical Group OR IPA] AND Evaluation	AND Consumer Satisfaction
[Physician OR Physician Group OR Medical Group OR IPA] AND Survey	AND Access to Specialists
[Physician OR Physician Group OR Medical Group OR IPA] AND Assessment	AND Access to Specialists
[Physician OR Physician Group OR Medical Group OR IPA] AND Instrument	AND Access to Specialists
[Physician OR Physician Group OR Medical Group OR IPA] AND Questionnaire	AND Access to Specialists
[Physician OR Physician Group OR Medical Group OR IPA] AND Evaluation	AND Access to Specialists
[Physician OR Physician Group OR Medical Group OR IPA] AND Survey	AND Process of Care
[Physician OR Physician Group OR Medical Group OR IPA] AND Assessment	AND Process of Care
[Physician OR Physician Group OR Medical Group OR IPA] AND Instrument	AND Process of Care
[Physician OR Physician Group OR Medical Group OR IPA] AND Questionnaire	AND Process of Care
[Physician OR Physician Group OR Medical Group OR IPA] AND Evaluation	AND Process of Care
[Physician OR Physician Group OR Medical Group OR IPA] AND Survey	AND Health Outcomes
[Physician OR Physician Group OR Medical Group OR IPA] AND Assessment	AND Health Outcomes
[Physician OR Physician Group OR Medical Group OR IPA] AND Instrument	AND Health Outcomes
[Physician OR Physician Group OR Medical Group OR IPA] AND Questionnaire	AND Health Outcomes
[Physician OR Physician Group OR Medical Group OR IPA] AND Evaluation	AND Health Outcomes

## COMBINATIONS OF KEY WORDS USED IN THE SECOND LITERATURE REVIEW

1) physician-patient relations	AND patient satisfaction	AND statistics and numerical data
2) physician-patient relations	AND patient satisfaction	AND outcome assessment
3) physician-patient relations	AND patient satisfaction	AND quality of health care
4) physician-patient relations	AND decision making	AND physician's practice patterns
5) physician-patient relations	AND consumer satisfaction	AND health services research
5) physician-patient relations	AND personal health services	AND delivery of health care
6) consumer satisfaction	AND continuity of patient care	
7) consumer satisfaction	AND patient acceptance of health care	AND factor analysis
8) consumer satisfaction	AND health services	AND socioeconomic factors
9) quality of life	AND patient satisfaction	AND statistics and numerical data
10) utilization review	AND patient satisfaction	AND statistics and numerical data
11) quality of life	AND patient satisfaction	AND health maintenance organizations
12) utilization	AND patient satisfaction	AND health services accessibility
13) pharmaceutical services	AND patient satisfaction	AND statistics and numerical data
14) health services	AND patient satisfaction	AND health status

**APPENDIX B:**

**Article Summaries and Findings**

## Appendix B

Article #	Lead or Sole Author	Publication Date	Sample size	Description of sample	Assessment Level	Data collection Instruments used	Comments: Instrumental	Level of data	Data collection strategy	Comments: Data collection strategies	Domains studied in the various studies	Comments: Domains studied	Case mix factors adjusted in reports			
													Patient Demographic factors	Practice Characteristics	MD Characteristics	Findings
1	Roberts, JG	1987	59m (11); 43 (T2)	Pts with MI assessed at post-discharge	Physician	Ware, Huika	Order of questionnaire completion counterbalanced. Both questionnaires reliable ( $r = .64$ ; $r = .59$ ). Concurrent validity ( $r = .75-.81$ ).	Primary Data Collection/Analysis	4, 6 month clinic visit; face-to-face		Professional competence, finances/cost, access, convenience, availability of resources, continuity of care, humanness, efficacy, general satisfaction		None	None	None	
2	Slange, KC	1988			NA											
3	Turnbull, JE	1995			NA		This study presents info on the Report Card Pilot project and development of HEDIS 2.0 questionnaire. No data presented									
4	Sperni, RK	1987	NA	NA	Health Plan	HEDIS 2.0		Review article or other			NO INFORMATION PRESENTED		Not mentioned	Not mentioned	Not mentioned	No data presented
5	Emanuel, LL	1996	NA	NA	NA		This article compares the CAHPS point-in-time, cross sectional sample design with a two-wave longitudinal and cross-sectional sample design. Key finding—point-in-time sampling can mask differences between sick and healthy enrollees, and not recommended for capturing health plan performance over time.									
6	Allen, H	1998	14,587 (point in time), 5,729 longitudinal	Employees selected to represent 23 major managed care and indemnity plans in 5 regions of the US	Health plan	Employee Health Care Value Survey; CAHPS 2.0		Review article or other			Point-in-time sampling can mask differences between healthy and sick enrollees compared to two-wave longitudinal and cross-sectional sample design and not recommended for capturing health plan performance over time.					
7				nursing, medical, health psychology students in four health-related educational courses			Ratings using the "satisfaction" methodology more often significantly correlated with expressed values than ratings using "evaluation" methodology									
8	Linn, LS	1984	227		Physician	Modified Medical Preference Survey		Primary Data Collection/Analysis	Class setting	Modified versions filled out in classroom setting after viewing videotape of mock outpatient visit						
9	Merkel, WT	1984	222	Adult patients seeing 3rd year residents at family health center on selected days	Physician	Ware (Form 11-short form)	This study compared 10 medical residents' ratings of patients level of satisfaction with those of 222 adult patients.	Primary Data Collection/Analysis	Post visit face-to-face	Pts filled out survey after encounter with MD		No sign. Correlation between MD perception of patient satisfaction and actual patients' satisfaction with care	None	None	None	No sign. Relationship between actual patient satisfaction and MD perception of patient satisfaction
10	Williams, B	1994	NA	NA	NA		No data presented in this paper						None	None	None	
11	Sak, JE	1990	NA	Adult outpatients in various types of practices (single specialty, HMO, multispecialty, HMO, FFS, prepaid physician payment arrangements)	NA											
12	Rubin, HR	1993	17671		Physician	MOS Visit specific Questionnaire	This study compares patient ratings of specific outpatient visits across five systems of care in 3 major metropolitan areas in 1986	Secondary data analysis	self-reported questionnaire; clinic	Pts. Filled out survey after seeing MD but before leaving office.	Appt. scheduling; waiting time, technical quality, time with physician/health provider, care provided during visit			System of care		Analyses by system of care: solo FFS, solo practice, MSG FFS, MSG Prepaid, HMO; also done by city (Boston, Los Angeles, Chicago)
13	Allen, HM	1994	24,306	Employees of consortium of large employers in one of 6 geographic areas.	Health plan	Employee Health Care Value Survey	Not wholly relevant to PG-CAS instrument primarily at health plan level.	Secondary data analysis	Mail survey	Part of HEDIS evaluation efforts	Not mentioned	Not mentioned	Not mentioned	Not mentioned	Not mentioned	



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14	Elter, J	1997	50	Not specified	Health plan	Ware, Adapted form	This study reports on validation of patient satisfaction questionnaire with health care received during past year, using a triangulation of several methods.	Review article or other		No information provided.			Not mentioned	Not mentioned	Not mentioned	This study reports on validation of patient satisfaction questionnaire with health care received during past year, using a triangulation of several methods.
15	Nelson, EC	1995	NA	Data obtained from various sources: patients, employers, employees, etc.	Health care system	Measures of System Performance	This article mainly a comparison of report cards and instrument panels. Final section discusses experience of Dartmouth-Hitchcock Health System.	Review article or other			Access, general satisfaction, physical environment/facilities, visit-specific MD rating, community image (tag or clinic), employee satisfaction, utilization measures, health status	The Measures of system performance includes monthly indicators that assess consumer satisfaction, health outcomes, utilization and financial initiatives. Patient satisfaction measures assess patients condition, amount pt helped, overall physician quality.				No information provided.
16	Miller, R	1995	NA	NA	Home care		This is a promotional piece for a home medical equipment/ respiratory therapy business	Review article or other		No information provided.	Delivery time, equipment cleanliness, courtesy of driving personnel, explanation on use and care of products, problem resolution	NOT relevant to PG-CAS instrument development effort.	None	None	None	No information provided. Not relevant to PG-CAS instrument development effort.
17	Ross, CE	1981	372 children	Patients seen by one of 61 pediatricians in New Haven, Connecticut	Health plan, physician group, pediatrician	"Home cooked" questions related to patient satisfaction with pediatric care	Study assessed satisfaction of care provided by MDs in large prepaid groups compared to those in solo practice. 63% of mothers satisfied.	Primary Data Collection/Analysis	Home-based interview, direct observation of medical encounter	Three part data collection: MD interview, observation of clinic visit, and interview at home with selected patients.	Personal qualities; technical quality; care provided during visit			x (technical quality, psychosocial aspects)		Psychosocial component of care had largest association with satisfaction. Technical quality not significantly related to satisfaction. The number of minutes the MD spent with the patient in the visit and the child's health also not significantly associated with satisfaction.
18	Kisch, AI	1969	266	Sample of patients on welfare in LA	NA		This study examines subjective reactions of consumers in a large metropolitan area to participation in a prepaid group health plan and compares their reactions to those participating in alternative health insurance plans.				MDs training & technical competence; Doctor's concern, doctor's warmth; doctor's friendliness; technical quality, adequacy of doctor's office facilities and equipment; time with physician/health provider; amount of privacy in MD's office; Quality of medical care; Doctor's willingness to listen when you tell him about your health					Those in prepaid group plans less satisfied than those in Blue Cross with all variables except for amount of privacy, amount of time MD spends with patients, friendliness of nurses, and adequacy of office facilities and equipment. Degree of satisfaction related to marital status, low skepticism toward medical care, psychological well-being, and perceived positive health status.
19	Tessler, R	1975	354 prepaid plan; 356 alternative plan	Members in firms who had prepaid or alternative health plans	Health Plan	Not indicated	No data presented in this paper. However, author discusses merits and potential uses of patient and physician satisfaction measurer	Primary Data Collection/Analysis	Household interviews with selected employees of 2 industrial firms	Interviewing staggered to randomize as much as possible the order in which persons in various subsamples were interviewed. 91% response rate achieved.	Measures of access and perceived accessibility employed one-year time frame.					No data presented in this paper.
20	Campbell, AB	1995	NA	NA	Health plan, physician	None		Review article or other		No data presented in this paper.		No data presented in study	None	None	None	No data presented in this paper.

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21	Chung, KC	1989	345	Patients who visited outpatient plastic surgery clinic during 6 week period for a breast reconstruction; cosmetic surgery; skin/head/neck cancer surgery; pressure ulcer repair	Clinic; Physician (Plastic surgeons)	MOS Visit specific Questionnaire	Study done to use predictive modeling techniques to identify specific components of patient satisfaction associated with overall satisfaction in outpatient plastic surgery clinics	Primary Data Collection/Analysis	Self-administered questionnaire filled after MD visit	According to report 12,000 surveys done annually (20-30 patients from each practice); 3% refusal rate due to employees calling patients rather than outside agency. Only 2% of p/s report being dissatisfied; survey results contribute to 20% of physician's annual bonus	Personal qualities: length of time to get appt.; access by phone; waiting time; convenience; technical quality; explanation of what was done; general satisfaction; time with physician/health provider		Age	Clinic type (practice)		None of the other potential confounders were significantly associated with general satisfaction (e.g., gender, ethnic background, education). Most important predictors of patient satisfaction related to efficient clinic operation and the quality of patient-physician interaction.
22	Gaughan, C	1993	NK	Not specified	Physician	Not indicated	No data presented in this paper	Review article or other	Telephone surveys			No information on variables studied presented	Age; sex	Geographic location		Analyses done by provider type (GP, Nurse practitioner, health visitors)
23	Jensen, J	1987	1500	Health care consumers randomly selected throughout nation	Physician group/physician	Not indicated	Fluff piece written by National Research Corporation personnel	Review article or other	Not specified	Data collection not specified (assume phone?)		No information on variables studied presented				Three dimensions were captured by factor analysis: professional care, depth of relationship, and time spent with health professional
24	Poulton, BC	1986	728 of 1575 surveys	Patients attending for consultation in 3 general practices with general practitioner, nurse or nurse practitioner	Physician, nurse practitioners	Dialogue Patient Satisfaction Survey	Adapted the "Dialogue" patient satisfaction survey for nurses, GP, practice nurses, and health visitors	Primary Data Collection/Analysis	Self-administered questionnaire, returned by mail							
25	unknown	1986	NK	Consumers Union members	Health plan											
26	McGuirk-Powell, M	1991	NA	NA	NA											Age, length of patient-physician relationship, how physician chosen, preference for autonomy during visit, preference for self care, and expectations regarding proportion of care from MD were variables significantly related to satisfaction (controlled in analyses)
27	Thom DH	1989	414	Patients from 20 community-based, primary care clinics enrolled in prospective 6 month study	Physician	Trust in Physician Scale	Study done to further validate and assess reliability and validity of Trust in Physician scale; Cronbach's alpha=.89	Primary Data Collection/Analysis	Self-administered questionnaire (baseline), Mail survey (1 month; 6 months)		Professional competence; personal qualities; humanness; TRUST		Age; sex; education			Age, length of patient-physician relationship, how physician chosen, preference for autonomy during visit, preference for self care, and expectations regarding proportion of care from MD were variables significantly related to satisfaction (controlled in analyses)
28	Sikma HJ	1988	113, 104	Dutch patients seen by 161 GPs in Netherlands, 1987	Health plan, physician	Dutch National Survey of General Practice	Secondary data analysis done to determine how patient satisfaction varies with personal characteristics, characteristics of providers and structural setting in which MDs work.				Interpersonal relationship; accessibility; humanness; satisfaction with information/ advice given		Age; sex; perceived health status; psychosocial complaints, # chronic diseases, children in family; frequency of visits to GP	GP's age, gender, number of years working as GP, patient-related attitudes, information given by GP or practice level. Age, morbidity, previous experiences with GP in form of misunderstandings or incidents related to satisfaction.	GP's age, gender, number of years working as GP, patient-related attitudes, information given by GP or practice level. Age, morbidity, previous experiences with GP in form of misunderstandings or incidents related to satisfaction.	90-95% of variance accounted by patient variables; other 5-10% is at variables: other 5-10% is at variables: other 5-10% is at variables: other 5-10% is at

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29	Schmidl J	1997	10205	Random sample of HMO members ages 35 to 85 years of age who were impaneled with a primary care physician	Physician	MOS Visit specific Questionnaire	Used 9 questions from MOS + additional question on what patients value in personal physicians (adapted from population survey) (REF given) + SF-12+ Health Belief Question	Primary Data Collection/Analysis	Mail survey	Overall response rate=71.4%	Professional competence; personal qualities; humaneness; technical quality; explanation of what was done; psychosocial aspects; courtesy; general satisfaction; time with physician/health provider					Analyses done primarily whether MD chosen or assigned to patients; then by specialty characteristics (family practitioners, internal medicine, subspecialists) Age, education not sign related to patient satisfaction. Women more likely to be satisfied. Health status, employee satisfaction with out-of-pocket costs positively related to patient satisfaction. A patient-centered practice style and belonging to PPO positively associated with patient satisfaction. Communication, affective care, and technical competence correlated highly with each other. Overall internal consistency (Cronbach's alpha=0.92). Test-retest reliability=0.63.
30	Schauffler HH	1996	5066	Employees aged 19 to 64 years enrolled in 21 health plans, for at least 3 years who had seen MD at least once in past 3 years	Health plan, physician	Health Plan Value Check, 1994	Aim of study to determine if discussion of health education topic by provider was associated with increased patient satisfaction.	Secondary data analysis	Mail survey	Overall response rate=52%	General satisfaction; "Overall, how satisfied are you with the doctor seen most frequently?" IV: Has physician or other health care provider discussed any of these health education topics with you in the last 3 years? DV: General satisfaction	Age; sex; education; race; physical/ mental score				No significant correlations b/w SES of patients and their general satisfaction with care or their perceptions of MD conduct
31	DiMatteo MR	1980	329	Low income patients seen in university-based family practice clinic	Physician	Not indicated (in-house)	27 item questionnaire consisting of agree-disagree response on a five point Likert scale	Primary Data Collection/Analysis	Self-administered questionnaire	81.3% response rate; Test-retest reliability assessed by having 24 pts fill out survey several weeks after when they returned to another visit	Professional competence; technical quality; explanation of what was done; general satisfaction; MDs communication; MDs empathy	Age; sex; education	Type of health plan (e.g., PPO, HMO, POS, IPA); MD practice style (patient centered); communication system of care			Analyses based on type of questionnaire given (direct, indirect, or intermediate). Five factors: communication, care, professional attitudes & behaviors; personal confidence of patient; technical competence; and generating trust in MD. Alpha coefficient =0.91.
32	Stewart MA	1978	299 of 319	Pts suffering from chronic condition who had a visit with one of 5 participating MDs	Physician (Hulka & Zydzanski measure)		Survey modified a) to refer to doctors in general (indirect measure); b) to refer to doctors in general in light of care receive (intermediate measure); and c) to refer to patient's personal MD (direct measure)	Primary Data Collection/Analysis	Mail survey, medical record, MD self-reported questionnaire	6.3 % of pts missed or refused to be interviewed (n=299 of 319 patients)	Personal qualities	Also developed questions assessing pts. Perception of degree to which doctor had helped; pts general assessment of progress. Process of patient care questions included items which assessed MDs knowledge of pts. Problem (MD survey, PT survey, medical record)	Age; sex; occupational status	Amount of time Pt MD asks about with particular MD family/job		

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33	Faletti G	1986	503	Pts aged 15 to 70 who were being seen by one of general practitioners	Physician	Not indicated (in-house)	49 items questionnaire with questions reworded for two versions (one for "ideal" physician and second for "actual" physician.	Primary Data Collection/Analysis	Self-administered surveys (2 versions)	Pts given "ideal" MD questionnaire prior to their consultation. The Actual MD questionnaire given after visit and asked to return within 24 hours (by mail). Overall response rate =86.7%.	Competence in physical domain & physical examination; continuity of care; mutual participation; psychosocial aspects; time with physician/health provider; competence in emotional domain; competence in social awareness; MD treated them as unique individuals (perception of their individuality)	Pts given "ideal" MD questionnaire prior to their consultation. The Actual MD questionnaire given after visit and asked to return within 24 hours (by mail).				Predictors most strongly correlated with satisfaction included access, continuity, comprehensiveness, integration, clinical interaction, interpersonal treatment and trust, with trust accounting for 35% of variance in adjusted bivariate regression model. Patients' education and self-reported mental health also statistically related to satisfaction.
34	Safran DG	1988	7204	Adults employed by Commonwealth of Massachusetts	Physician		Additional questions included to assess outcome measures related to adherence, satisfaction ("All things considered, how satisfied are you with your regular doctor?", and health outcomes (MOS); Satisfaction =outcome variable.	Primary Data Collection/Analysis	Phone followup with non-respondents; 3-step mail survey protocol with phone followup	Overall response rate=68.5% resulting in N=7204 respondents.	Thoroughness of physical examination; finances/cost; access; continuity of care; general satisfaction; comprehensiveness of care; integration of care; MD-patient communication; TRUST, interpersonal relationship and are not visit-specific.	Education; mental health status				Attitudes more favorable toward professional competency and personal qualities of MDs. Accessibility, including costs and convenience less highly regarded. Men less satisfied than women. Having a regular physician and long attendance with that physician correlated with positive attitudes. Young black adults also expressed dissatisfaction with MDs personal qualities. Internal consistency reliability =0.77. Following 6 factors accounted for 60% of variance: physician conduct (41.4%), continuity of care, accessibility, availability of hospitals/specialists, completeness of facilities, and availability of family doctors
35	Hulka BS	1975	1713	Individuals in community setting living in 1,112 households	Health plan	Not indicated (in-house)	This study describes the development and validation of a patient satisfaction questionnaire and then presents descriptive profile of factors associated with varying levels of satisfaction in a community sample. Thurstone equal appearing interval technique used in developing scale, later modified to Likert format with 5 response items.	Primary Data Collection/Analysis	Household survey, stratified random sampling	Data for analysis based on 1,713 adults who completed satisfaction questionnaire.	Professional competence; personal qualities; finances/cost; technical quality	Age, sex; race; social class; household residents; having regular physicians				

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36	Doyle BJ	1977	432 household interviews	Mixed sampling design used to draw 520 households in Illinois	Health plan, physician	Ware	51 item PSQ used to develop scales	Primary Data Collection/Analysis	Household interviews	Mixed sampling design used (cluster, regular interval, and proportional stratified)	Professional competence; consideration: cost, payment, mechanisms; access; convenience; availability of resources; hospitals, specialists, family doctors; continuity of care; explanation of what was done; general satisfaction; MDs facilities; prudence (expenses); PSG General Insurance coverage	General satisfaction measured with 4 item PSG General satisfaction scale.	Age; sex; education; health status			Physician conduct accounted for 41% of variance regardless of pt characteristics.
37	Ware JE	1978														Managed care enrollees were younger, had lower incomes, were less likely to be white, and less likely to have attended college than FFS enrollees. Managed care enrollees less satisfied with provider choice and access to services and choice of doctors and ease of changing doctors, but more satisfied with out-of-pocket costs for services and the range of services covered. Women in managed care less satisfied than FFS enrollees with access to specialty care.
38	Wyn R	1997	1,544 women	adults aged 18-64 living in Boston, Miami, Los Angeles who had employer- or union-sponsored insurance	Health plan	Commonwealth Fund's Managed Care Survey (1994)	This study assesses female enrollees' satisfaction with provider choice, access to services, and affordability of coverage among women in fee-for-service (N=685) and managed care programs (689).	Primary Data Collection/Analysis; secondary data analysis	Random digit dialing; structured interviews during clinic days	Multistage sampling used to select 1451 users	Finances/cost; access; provider choice		Age; sex; education; income; ethnicity	Clinic type (practice)		
39	Bush T	1993	270	Patients between 18 and 64 years of age with low back pain seeing 21 primary care providers in HMO	Health plan, physician	Not indicated (in-house)	Adapted from survey used by Chertkin et al (1991)	Primary Data Collection/Analysis	20-minute phone interview done 3 weeks post-visit	Data come from educational intervention study designed to improve MD knowledge, comfort and confidence in caring, effectiveness of treatment	MD's self-reported competence in treating low back pain and their attitude toward patients with back pain also assessed.					Patient satisfaction= dependent variable. Level of MD competence and attitudes=independent variable. Provider confidence significantly related to satisfaction with information. Controlling for covariates did not alter these findings.
40	Law ST	1997	197	Consecutive new patients seen in hospital based primary care clinic	Health plan, physician	Not indicated (in-house)	Study presents profile of patients attending a hospital-based primary care clinic, and their expectations of care and satisfaction with care received.	Primary Data Collection/Analysis	Pre- and post-visit questionnaires, self-administered; medical record	Medical chart review done to determine concordance of reported health problem and treatment between patient self-report and doctor recording in chart	*Good doctor "Nice doctor", waiting time; care provided during visit; Expectations of care met; satisfaction with treatments received; doctor's explanation of treatment; comprehensiveness of service provided	Most patients reported high satisfaction with care provided and with MD				

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41	Allen WW	1996	436 of 672	All adult patients visiting four family practice residency clinics in 1992	Physician group/physician	Ware (5 of 8 dimensions used)	Five of 8 Ware dimensions assessed in this study.	Primary Data Collection/Analysis	Self-administered	Stepwise multiple regression done to determine which DOC elements highly associated with patient satisfaction. (Total visit-specific satisfaction=DV). Total visit-specific satisfaction related to four DOC variables: health education, physical exam, discussion of treatments and history taking.	Personal qualities; access; convenience; continuity of care; physical environment/facilities; five dimensions studied: interpersonal manner; efficacy/outcomes; accessibility/convenience; continuity; physical environment	Note: General MD questionnaire rewarded at post-visit for specific MD during specific visit	Not mentioned	Not mentioned	Not mentioned	Medicaid recipients compared to non-Medicaid recipients more satisfied with physical environment dimension; no differences found on other dimensions. No differences in patient satisfaction found between Medicaid and non-Medicaid patients after controlling for various sociodemographic variables, life satisfaction, and confidence in local medical community.	
42	Robbins JA	1993	100	New patients being seen by 2nd, 3rd year resident MDs in academic, general practice setting	Physician	Ware (adapted version); Davis Observation Code	Physician behavior coded with Davis Observation Code; patient satisfaction with Modified 18 item Ware questionnaire. General satisfaction and visit-specific satisfaction assessed.	Primary Data Collection/Analysis	Pre-and post visit questionnaires completed	Professional competence; access; humaneness; technical quality; general satisfaction	Professional competence; access; humaneness; technical quality; general satisfaction	Note: General MD questionnaire rewarded at post-visit for specific MD during specific visit	Age; sex; education; insurance status			DOC variables: health education, physical examination, discussion of treatment, and history taking	All these variables related to total patient satisfaction and to specific satisfaction scales related to humaneness, general satisfaction, and quality/competence scales.
43	Weiss BD	1990	2,365 pre-enrollment	Employees of university who were enrolled in HMOs at pre-enrollment time	Health system	Not indicated (in-house)	Study conducted to develop survey instrument that would be predictive of patient disenrollment from health plans because of dissatisfaction. This article assessed various components in construct "satisfaction" and relates them to utilization of services. A general satisfaction measure assesses physicians and medical care delivered; the specific satisfaction measure assesses past experience with the regular source of care.	Primary Data Collection/Analysis	Pre- and post open enrollment surveys	Professional competence; personal qualities; access; convenience; MDs, hospital, specialty care; physical environment/facilities; MD-patient communication; staff attitudes toward patients;	Professional competence; personal qualities; access; convenience; MDs, hospital, specialty care; physical environment/facilities; MD-patient communication; staff attitudes toward patients;	IV: Various factors related to patient satisfaction; DV=Did member disenroll from health plan? 29 items were found to be related to disenrollment from plan; 10 of these found to have predictive ability. (Cronbach's alpha=0.84).					
44	Rogmann KJ	1979	311	Stratified random sample of welfare recipients in New York	NA	Not indicated (in-house)	This paper profiles users of health centers in two locations and their perceptions of efficiency of services provided by MD, nurses, and pharmacists.			Professional competence; access; waiting time; courtesy, duration of examination; Practitioner's consideration & courtesy; skills & competence; opportunities for seeing specialists; MDs willingness to listen to patients; MDs advice	Professional competence; access; waiting time; courtesy, duration of examination; Practitioner's consideration & courtesy; skills & competence; opportunities for seeing specialists; MDs willingness to listen to patients; MDs advice					Patients ratings of nurses higher than that of MDs and pharmacists.	
45	Singh H	1999	1451	Patients seen in health centers in Trinidad & Tobago	Health care providers	Not indicated (in-house)										Provider type/specialty	



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46	Beck A	1997	321	Elderly HMO members participating in group outpatient visits	Health plan	NK; Katz ADL, OARS ADL and mobility stress; MD satisfaction survey	No mention of source of items for patient satisfaction survey. A higher proportion of patients in group outpatient program rated the overall quality of care they received as excellent compared to patients in traditional patient-physician dyad. Patients in group program also tended to state that they could "obtain" apps, as soon I like" and that "all their health care needs are met."	Primary Data Collection/Analysis	Baseline data from initial sample of 400 pts.; 4 months follow-up for patient satisfaction with 150 pts.; Outpatient utilization costs, utilization data (administrative databases); medical record				Not mentioned	Not mentioned	Not mentioned	
47	Weingarten SR	1995	2799	Randomly selected elderly patients seen in general practice of 49 GPs belonging to one large HMO	Physician group/physician	RAND Health Insurance experiment IMPROVE	Dartmouth COOP quality of life survey; medical chart abstraction to determine preventive care services. Study done to determine association of patient satisfaction to quality of medical care received by patients in MDs offices	Primary Data Collection/Analysis	Phone surveys done with patients who called; mail survey; medical record	N=2799 completed surveys (2253 from mail; 546 from phone)	Technical quality, art of care (9 items); technical aspects of care (5 items) and total satisfaction (mean of 14 items)					IV. Provision of preventive care services for various conditions. DV=patient satisfaction. Authors found significant relationship between patient satisfaction and provision of some but not all preventive care services. Older patients, those with better quality of life scores, and those who had been cared by their MD for > 4 years had higher satisfaction scores. Gender not statistically related. Older MDs had higher scores on technical aspects of care compared to younger MDs.
48	Kotika TE	1997	6830	Stratified random sample of patients visiting one of 44 clinics in and around Minneapolis-St. Paul, Minnesota	Physician group/physician	Association of America Index of patient satisfaction	This randomized case-control study assessed the impact of quality-based intervention on improvement of patient satisfaction with office visits.	Secondary data analysis	Mail survey	N=6830 of 7,997 randomly selected patients returned surveys (85.4% response rate)			Not mentioned	Not mentioned	Not mentioned	Self-reports of being advised to have a preventive service when due correlated with higher levels of satisfaction with that specific service only and with general satisfaction index. Patients who visited MDs in intervention site tended to have higher satisfaction scores compared to patients seen in sites without intervention. Significant improvements found in satisfaction with factors related to access, physician attributes, and overall visit.
49	Iserberg SF	1998	6088 Phase I; 2272 Phase II	Convenience samples of new and return patients seen in 59 MDs offices who were members of Project SOLQ/Physicians Information Exchange	Physician group/physician	Questionnaire (9-item Visit Rating Questionnaire (Adapted from Rubin et al, 1993))	Domains included in survey: art of care, technical quality, physical environment, access, availability.		Self-administered questionnaire	Study conducted pre and post intervention with convenience sample of patients seeing MDs in each practice	Professional competence; access; convenience; technical quality; courtesy; general satisfaction; Overall visit; technical skills; personal manner of providers;					Following characteristics associated with increased satisfaction: having procedures explained by provider, short waiting times at site; availability of ancillary services, and having a male prenatal care practitioner. For both Mexican American and African American women, procedures was most important determinant of satisfaction.
50	Handler A	1998	88 African American; 27 Mexican American	Medicaid recipients receiving prenatal care	Physician group/physician	Ware (22 items adapted to assess satisfaction with prenatal care)		Primary Data Collection/Analysis	25 minute telephone interview	Stratified random sample of patients who met eligibility criteria sampled from each of the three main physician specialty groups	Access; availability of resources; efficacy; technical quality; physical environment/facilities; art of care					

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51	Grunbach K	1999	10608	Patients aged 35-65 years, selected from primary care panels of 60 family practitioners, 245 general practitioners, and 55 subspecialty internists' offices at 13 facilities in one large HMO	Physician group/physician	MOS (7 items modified for HMO); Additional items measuring overall satisfaction with physician and whether they would recommend MD to friend/family member; SF-12	This study sought to determine whether physician specialty was associated with differences in the quality of primary care practice and patient satisfaction in a large, group model HMO.	Primary Data Collection/Analysis	Cross-sectional, stratified random sample of patients; Consecutive patients attending clinic filled self-administered questionnaire		General satisfaction; primary care measures: coordination, comprehensiveness, accessibility of care, preventive care procedures, and health promotion.	Age; sex; education; income; ethnicity, pt chose or assigned MD				Sociodemographic variables not significant. Patients were similar in their health values and beliefs, ratings of quality of primary care, and satisfaction regardless of whether they received their care from a family practitioner, general practitioner, or specialist. Patients rated GIMs higher than FPs on coordination and then FPs on coordination and prevention. There were no significant differences between specialty groups on a variety of measures of patient satisfaction.	
53	Grogan S	1995	1193	Patients 16 and over randomly selected from one GP practice in Norfolk	Physician group/physician	Not indicated (in-house)	Items developed from key informant surveys, literature review and factor analysis	Primary Data Collection/Analysis	Mail survey	42.8% response rate. No follow-up done with any patients.	Professional competence; phone, transport, appointments, facilities, emergency care, treatment, outcome, nurses, receptionists; availability of resources (ER, nurses); general satisfaction; MD communication skills; MD social skills	Age; sex				Women, older patients were more satisfied	
54	Taira DA	1997	502	Successive patients who visited study site	Physician group/physician	Primary Care Assessment Survey	This study examines differences between Asians and other ethnic groups on seven dimensions of primary care.	Primary Data Collection/Analysis	Four-step mail protocol used	65% response rate for mail survey> Reminder card, second mailing and phone follow-up with nonrespondents done.	Professional competence; access; continuity of care; Comprehensiveness, integration, clinical quality (communication & technical skill), interpersonal	Ethnicity				Asian Americans rated overall satisfaction and every dimension of primary care lower (except longitudinal continuity) than Whites, African Americans, and Latinos.	
55	Steven ID	1999	12605	Patients of 133 general practices	Physician group/physician	Not indicated (in-house); 39 item questionnaire developed from focus group tests	The goal of this study was to develop and explore the use of a patient satisfaction questionnaire and to determine patient and provider characteristics associated with patient satisfaction	Primary Data Collection/Analysis			Interaction between patient and practitioner; technical importance in consultation (practitioner's ability to relate to different patient populations); and accessibility. These 3 factors explained 44.4% of variance	Age				The following associated with significant increase in satisfaction: increasing age, shorter time since last consultation, longer duration attending the practice, regularly attending one general practice, and increased number of consultations within past 12 months	